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The Prepared Flute: A Survey of its History, Techniques, and Repertoire

Stacey Lee Russell
University of South Carolina

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The Prepared Flute: A Survey of its History, Techniques, and Repertoire

by

Stacey Lee Russell

Bachelor of Music Education
Cedarville University, 2007

Master of Music
Wright State University, 2011

Submitted in Partial Fulfillment of the Requirements

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School of Music

University of South Carolina

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Accepted by:

Jennifer Parker-Harley, Major Professor

Michael Harley, Committee Member

John Fitz Rogers, Committee Member

Phillip Bush, Committee Member

Lacy Ford, Senior Vice Provost and Dean of Graduate Studies

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ABSTRACT

Beginning with Varese's *Density 21.5* in 1936, composers have been experimenting with extended techniques to expand the flute's range of sound. In an attempt to increase the timbral possibilities of the instrument, contemporary composers are writing for the prepared flute: adding objects on or inside the flute, or subtracting parts of the flute to alter its sound.

This is the first written document to focus on the prepared flute. Deborah Fethers, in her major project discussing contemporary flute design in 2005, mentions the use of prepared flute by Michael Pestel, and states that "to my knowledge the only use of such 'preparation' of a flute is by Pestel" (Fethers). My research shows that there are, in fact, numerous other examples of composers' use of preparations when writing for the flute, and this document serves to compile those examples. With compositions for prepared flute written as early as the 1980s, the flute community is in need of a detailed account of the pieces available, how to tackle the technical intricacies, and a reference for composers to consult. As the above quote indicates, most musicians in the flute community are unaware that the prepared flute genre exists, let alone know the major players involved in this area.

Limitations of this study include the difficulty to obtain copies of all pieces written for prepared flute because many are either hard to find or unpublished.

Correspondence from the composers is deficient, due in part to language and location barriers or lack of response.

This document presents the history of the prepared flute through the examination of ten pieces, and discusses objects commonly used to prepare the instrument. In addition, this project involved commissioning a new work for prepared flute and prepared piano, a combination lacking in current repertoire. The preparations for the flute provide new realms of sound possibilities for the instrument, offer new avenues for composing unpredictable music, and inspire new chamber music that includes prepared flute. With greater awareness of prepared flute, the author hopes that more flutists will become aware of the possibilities, composers will be inspired to add to the idiom, and audiences will be inspired by the music that results.

Also included in this document are tables that list repertoire and preparations specific to each piece, and two appendixes that provide listening possibilities and locations to purchase the compositions mentioned in this document. Finally, my website (www.staceyleerussell.com) includes a section dedicated to new pieces for prepared flute, experimentations, recordings, and helpful tips.

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CHAPTER 1

BACKGROUND ON PREPARING INSTRUMENTS

The inspiration to prepare the flute begins with early piano preparations. In fact, the motivation to prepare any instrument starts with Henry Cowell.

1.1 HISTORY OF PREPARED PIANO:

The beginning of piano preparation can be traced back to composer John Cage. In 1936 he studied with Henry Cowell, composer of *Aeolian Harp* (ca. 1923) and *The Banshee* (1925), piano works that feature extended techniques. Cage took inspiration from the innovations of Cowell, who stroked, rubbed, and strummed the piano strings in unique ways.¹ Cage then moved to Seattle in 1938, and was soon commissioned by the Seattle dance community. *Bacchanale*, which was choreographed by Syvilla Fort, premiered in April of 1940 at the Repertory Playhouse. Cage originally intended to score the music for percussion ensemble, but the stage at the Playhouse had insufficient space to fit the group. Instead, he only had room for a single piano. Inspired by his studies with Cowell, Cage first chose to place a pie plate on the piano strings, and experimented with nails.² The “prepared piano” transformed the instrument into a “percussion orchestra of original sound and the decibel range of a harpsichord directly

¹ Joel Sachs, *Henry Cowell: A Man Made of Music*, (New York: Oxford University Press, 2012), 148.

² “How the Piano Came to be Prepared,” John Cage Trust, accessed May 6, 2016, http://johncage.org/prepared_piano_essay.html

under the control of a pianist's fingertips."³ He achieved these new sonorities by inserting screws, nuts, bolts and other objects into the strings.

In a lecture entitled "The Future of Music: Credo," Cage stated "I believe that the use of noise to make music will continue and increase until we reach a music produced through the aid of electrical instruments which will make available for musical purposes any and all sounds that can be heard."⁴ Cage also believed that sound is a spectrum, and he wanted to provide composers a larger range of sound possibilities.⁵ The preparation of the piano provides one avenue to achieve this desire. Cage's most successful work for prepared piano is *Sonatas and Interludes* (1946-1948).

Current piano preparations find their roots in the innovations of the past. *Incontro Concertante* (2010-2012) by Swedish composer Ansgar Beste, calls for the preparation of other instruments, and the composer seeks to explore "sustainability" and "musical innovation beyond technology."⁶ There is value in invention that can exist without the reliance on technological innovations. *Incontro Concertante* is written for prepared piano and prepared trio: prepared flute, prepared clarinet, and prepared cello. The preparations for the clarinet and cello are discussed later in this chapter, and the preparations for the flute are discussed in Chapter 3.

³ John Cage and Élise Patton, *Confessions D'un Compositeur*, (Paris: Éd. Allia, 2013), 11.

⁴ John Cage, *Silence: Lectures and Writings*, (Middletown, Conn: Wesleyan University Press, 2011).

⁵ Ibid.

⁶ "Bio," Ansgar Beste – Composer-Researcher, accessed January 24, 2016, <http://www.ansgarbeste.com/about/bio/>.

To prepare the piano, Beste uses 10 large wooden clothespins, 18 insulated metal alligator clips, and 60 metal blind rivets. From A2 to F-sharp¹, each wooden clothespin is clipped on the beginning of the string, in front of the hammer. The metal alligator clips are fastened onto the strings in a zigzag pattern: directly behind the hammer, behind the metal frame, and in front of the hammer and metal frame. The metal blind rivets stand together in a line, and are wedged between strings two and three. The rivets on the strings with dampers are located in front of the metal frame, and directly in front of the bridge. The rivets on the strings without dampers are located at the level of hammers.⁷ Beste's goals in composing are: "innovative sounds that bring music history forward, structuring of these sounds to clear processes as well as theatricality that enhances the live experience of music to a more holistic sensory perception."⁸ The piano creates noises that sound like explosions, *guerros*, and breaking strings.⁹

In conclusion, the prepared piano has evolved in many ways in the last hundred years. It all began with Henry Cowell, who played inside the piano. Henry Cowell inspired John Cage, who took this idea even further, using screws, bolts, and other objects to create percussive effects. Of the composers currently writing for prepared piano, Ansgar Beste's piece for prepared piano, accompanied by prepared trio, showcases new ideas on the topic. With objects like clothespins, alligator clips, a

⁷ Ansgar Beste, *Incontro Concertante*, (Babel Scores, 2010).

⁸ "Bio," Ansgar Beste – Composer-Researcher, accessed January 24, 2016, <http://www.ansgarbeste.com/about/bio/>.

⁹ Appendix A.

“clusterboard,” and other “sustainable” innovations, Beste continues to add more layers to the prepared piano idiom, and the prepared chamber music idiom.

1.2 HISTORY OF PREPARING OTHER INSTRUMENTS

Piano and flute are not the only instruments that can be prepared. In fact, all instruments can be prepared in some way. “Preparing” an instrument means adding objects on or inside the instrument, or subtracting parts to alter the sound. The possibilities for instrument preparation are endless. Instruments discussed in this study are prepared with paper, plastic/celluloid, metal, rubber, wood, water, and other materials. In addition, parts of the instrument can be removed, or parts added from other instruments.

1.2.1 Clarinet:

Composers have prepared the clarinet by adding aluminum foil. The foil is generally used to cover the bell, resulting in a consistent buzz sound. An example of this preparation is Ansgar Beste’s *Incontro Concertante*. The aluminum foil is used to cover the upper keys of the clarinet, while all keys and holes from the C hole remain free.^{10 11}

Beste’s work employs the use of water through a vinyl tube/garden hose and a large conical jar, slightly filled with water, seen in Figure 1.1. The tube is inserted into the bell as far as necessary to not slide out of the instrument. Beste suggests that the performer protect the bell against any splashing by wrapping a piece of plastic foil

¹⁰ Ansgar Beste, *Incontro Concertante*, (Babel Scores, 2010).

¹¹ Appendix A.

around the bell and securing it with a rubber band. At the indicated time in the score, the performer inserts the end of the vinyl tube/garden hose into the jar without touching the jar. Beste suggests that the jar can be placed on a music stand or on a cardboard box.¹² The exhalation of air through the vinyl tube into the jar creates a bubbling sound.



Figure 1.1 Clarinet with vinyl tube¹³

1.2.2 Saxophone:

Metals such as aluminum and tin foil are used to prepare the saxophone in a manner similar to the clarinet. Giacinto Scelsi's song cycle *Canti del Capricorno*, prepares the saxophone using aluminum foil.¹⁴ Tin foil, however, is a slightly heavier material than aluminum foil. The vibrations from the tin foil, in combination with specific extended techniques such as multiphonics, cause vibrations that create a rattling or

¹² Ansgar Beste, *Incontro Concertante*, (Babel Scores, 2010).

¹³ Ibid.

¹⁴ Susan Laverne Fancher, "The Saxophone in the Music of Giacinto Scelsi (1905—1988)" (D.M. diss., Northwestern University, 2002).

buzzing sound.¹⁵ An example of this preparation is Allan Gravgaard Madsen's *Schattenschwarz* (2013) for prepared saxophone quartet.^{16 17}

1.2.3 Bassoon:

Plastic has been used to prepare the bassoon. Microtonal composer Johnny Reinhard's piece entitled *ZANZIBAR* (1993), for solo prepared bassoon, creates new timbres on the bassoon with the use of an unconventional object, a ping pong ball, as well as the removal of parts of the instrument.¹⁸ The composition, with the help of the preparations, transports the audience to an African safari.¹⁹

1.2.4 Violin:

Paperclips can be attached to the strings of a violin to create white noise, metallic sounds, and sounds of breaking strings. Matthias Pintscher's *Study IV for Treatise on the Veil* is written for a prepared string quartet.²⁰ All four instruments are prepared with paperclips attached near the bridge of each instrument.²¹ Keeril Makan's *Mu* requires the violin to be prepared with two paperclips attached between the bridge and the fingerboard.^{22 23}

¹⁵ Appendix A.

¹⁶ "Biography Allan Gravgaard Madsen," accessed January 22, 2016, <http://www.agm.dk/biography/>.

¹⁷ Appendix A.

¹⁸ "Bassoonist Johnny Reinhard," Cdbaby, accessed February 13, 2016, <https://www.cdbaby.com/m/cd/vieruspbrs>.

¹⁹ Appendix A.

²⁰ Appendix A.

²¹ "Programme Notes," accessed March 23, 2016, <http://www.worldisnow.co.uk/pintscher.html>

²² Alexandra Matloff, "Focusing on the Present: Incorporating Contemporary American Solo Works in the Undergraduate Violin Curriculum," (D.M. diss., The Florida State University, 2015).

²³ Appendix A.

1.2.5 Viola:

Objects can be placed between the strings as well as attached to the strings.

David Ernst's *Rounds* for prepared viola involves placing strips of paper between the strings.²⁴ This preparation produces a buzzing sound.

1.2.6 Cello:

Ansgar Beste prepares the cello with letter corners, a bamboo knitting needle, and Styrofoam eggs in *Incontro Concertante*, seen in Figure 1.2. Letter corners are attached to cello strings to create a buzzing or gong-like sound. A bamboo knitting needle is woven above and below the strings. Two Styrofoam eggs are attached by wedging the center of one egg between strings one and two, and the other egg between strings three and four. Both eggs should be located exactly between the end of the fingerboard and the bridge. Beste provides an alternative to the Styrofoam eggs, if the "complex overtone spectrum of the sound distortion generated by the Styrofoam feels unbearable for the cellist's ears."²⁵ Instead, a large plastic plug can be woven between the strings, seen in Figure 1.3.^{26 27}

²⁴ Patricia Strange, *The Contemporary Violin: Extended Performance Techniques*, (Scarecrow Press, 2003).

²⁵ Ansgar Beste, *Incontro Concertante*, (Babel Scores, 2010).

²⁶ Ibid.

²⁷ Appendix A.



Figure 1.2 Letter corners used to prepare a cello²⁸



Figure 1.3 Plastic plug²⁹

1.2.7 Harp:

The preparation of the harp by composers and performers has a long history. There are many possibilities for harp preparation, such as paper in the strings, felt/cloth in the strings, a tuning fork, hair clips, erasers, prepared pedals, wooden objects in strings, and paperclips. Paper can be threaded between the strings or wrapped around a string of the harp. This typically produces a snare drum sound effect, buzzing sound, and pinched harmonic timbres.³⁰ Charles Rochester Young's *The Song of the Lark* (1989) for harp and flute, employs the use of paper between the strings of the harp, producing a snare drum effect, to portray a lark ascending into the sky. Felt or cloth can be used in a

²⁸ Ansgar Beste, *Incontro Concertante*, (Babel Scores, 2010).

²⁹ Ibid.

³⁰ "Harp Notation," Accessed January 22, 2016, <http://sites.siba.fi/en/web/harpnotation/manual/prepared-harp>.

similar manner, and the harp produces a muted tone, varied by the thickness of the cloth.^{31 32}

Typical metal preparations for the harp involve the use of paperclips, hair clips, and tuning forks. Paperclips can be attached to the strings of the harp to create a gong-like sound, and suspended paperclips produce a buzzing sound. Hair clips are clipped tightly to a string between the teeth of the clip. The result of this preparation resembles that of the paperclip, creating a gong-like sound. A metal tuning fork can be suspended on a string close to the soundboard. The rattling strings will create a metallic buzzing sound.³³

Erasers are used occasionally in the preparation of the harp. Erasers can be placed between two strings and rest on the soundboard. This technique produces a muted sound, much like the result of the felt placement.³⁴

Wooden objects can be inserted between the strings of the harp, and can be hit with a mallet, or pulled with the fingers. Objects such as honey spoons are ideal because they contain slots that keep the objects in place. This process changes the overtone spectrum of the strings, producing a gong-like sound.³⁵

³¹ Ibid.

³² Appendix A.

³³ "Harp Notation," Accessed January 22, 2016, <http://sites.siba.fi/en/web/harpnotation/manual/prepared-harp>.

³⁴ Ibid.

³⁵ Ibid.

1.2.8 Trumpet:

Rubber is also used to prepare instruments in a new way. Fisher Tull's *Chromutations for Solo Trumpet*, an unpublished work, states that a Harmon mute should be "prepared with a latex balloon or condom placed over the stem of the mute."³⁶ A possible ending of the piece involves popping the balloon while playing, by way of a pin.³⁷

The subtraction of instrumental parts alters the sound of the instrument without the addition of objects. Tull also calls for the third valve slide of the trumpet to be removed in *Chromutations for Solo Trumpet*. The performer should play in a normal manner, and direct the sound through the open slide.³⁸ Robert Erickson's *Kryl* (1977), requires that the instrument be performed with the first slide removed. The effect changes the timbre coming from the bell, as well as pitches coming from the open first valve. The tone is less focused, with more flexibility in intonation.³⁹ This creates an "effortless hocket between two timbral systems."⁴⁰

1.2.9 Trombone:

Polish composer and musicologist Ewa Fabiańska's *Miniatures Sonoristiques* was written for prepared trombone in 2011. Structured in seven segments, each part calls

³⁶ Alan James Wenger, "The Solo Compositions for Trumpet of Fisher Aubrey Tull," (D.M.A. diss., University of North Texas, 2002).

³⁷ Ibid.

³⁸ Ibid.

³⁹ Appendix A.

⁴⁰ Daniel Craig Keberle, "The Use of the Trumpet in the Music of Robert Erickson," (D.M.A. diss., Arizona State University, 1988).

for a different way to prepare the instrument. These preparations include the use of mutes, playing on separate parts of the instrument (like the mouthpiece), singing and playing, the removal of certain pieces (removing the tube of the F attachment valve), and 'percussion effects.'⁴¹ The performer is called to arrange the segments in any order that he or she chooses, as well as take rhythmic liberty and improvise.⁴² This piece arose from a collaboration between Fabiańska and her husband Wojciech, who both desire to create repertoire for the trombone that includes the preparation of that instrument.⁴³

1.2.10 Tuba:

Aus Verstreutem ein Ganzes, 1992, was composed by Lutz Glandien, a German avant garde composer and musician. Translated as "making a whole of the scattered," this composition is written for prepared tuba. *Aus Verstreutem ein Ganzes* is based on the works of visual artist Erika Stürmer-Alex, who was known for her collage technique.⁴⁴ Stürmer-Alex's pieces were created from objects found in streets, junk yards, and demolished houses, to make a unified whole. *Aus Verstreutem ein Ganzes* for tuba and tape uses the sound of 66 percussion instruments, sampled and distributed on the keyboard keys. Tubist Michael Vogt was given the accompanying tape, and asked to

⁴¹ Appendix A.

⁴² Ewa Fabiańska, *Miniature sonoristiques: na puzon preparowany solo*, (Kraków: Polskie Wydawnictwo Muzyczne, 2011).

⁴³ "Estonian Music Days," Robert Hugill, accessed March 30, 2016, <http://www.planethugill.com/2015/04/estonian-music-days-day-two.html>

⁴⁴ Erika Stürmer-Alex, an artist born in Wriezen in 1938, is the co-founder of "terminal moraine-artists association of Brandenburg and Berlin." She is known for her work with painting, graphics, collage, and art in architecture (Stürmer-Alex, "Short Biography.").

improvise to it. He was then instructed to take his tuba apart so parts of his instrument were exchanged with parts of other instruments.⁴⁵

British composer Melvyn Poore composed *Tubassoon*, for prepared tuba and amplification.⁴⁶ In this piece, “the four valve slides are removed and the apertures closed and individually routed to surround the audience.”⁴⁷ In addition to the removal of parts of the instrument, a bassoon reed is used for the performance of this work.

1.3 CONCLUSION:

Most orchestral instruments have repertoire that involves preparation. However, finding more than one piece, or detailed information about those pieces is difficult. The preparation of instruments is a relatively new technique, as the earliest works for a prepared instrument other than the piano dates back to the 1960s. This technique is could become more common in the future, as composers continually strive for ways that instruments can make more, and more unusual, sounds. Conversely, perhaps during the age of technological innovation, electronic modification will predominate.

⁴⁵ “Aus Verstreutem Ein Ganzes,” Lutz Glandien, accessed January 22, 2016, <http://lutzglandien.com/ref/verstreut-te.htm>.

⁴⁶ Appendix A.

⁴⁷ Simon Emmerson, *Living Electronic Music*, (Ashgate Publishing, Ltd., 2007).

Table 1.1 Instrumentation, compositions, and objects.

Clarinet	Beste, <i>Incontro Concertante</i>	Water – with Vinyl Tube
		Aluminum Foil
Saxophone	Scelsi, <i>Canti del Capricorno</i>	Aluminum Foil
	Madsen, <i>Schattenschwarz</i>	Tin Foil
Bassoon	Reinhard, <i>Zanzibar</i>	Ping Pong Ball
Violin	Makan, <i>Mu</i>	Paperclips
	Pintscher, <i>Study IV for Treatise on the Veil</i>	Paperclips
Viola	Ernst, <i>Rounds</i>	Paper
Cello	Beste, <i>Incontro Concertante</i>	Styrofoam Eggs
		Bamboo Knitting Needle
		Metal Letter Corners
Harp	Young, <i>The Song of the Lark</i>	Paper
		Erasers
		Tuning Fork
		Hair Clips
Trumpet	Tull, <i>Chromutations for Solo Trumpet</i>	Third Valve Slide Removed
		Latex Balloon/Condom
	Erickson, <i>Kryll</i>	First Slide Removed
Trombone	Fabiańska, <i>Miniature Sonoristiques</i>	Remove the Tube of the F Attachment Valve
Tuba	Glandien, <i>Aus Verstreutem ein Ganzes</i>	Junkyard Objects
	Poore, <i>Tubassoon</i>	Four Valve Slides Removed
		Bassoon Reed
Piano	Cowell, <i>Aeolian Harp</i>	Stroked, Rubbed Strings
	Cowell, <i>The Banshee</i>	Stroked, Rubbed Strings
	Cage, <i>Bacchanale</i>	Screws, Nuts, Bolts
	Beste, <i>Incontro Concertante</i>	Clothespins, Alligator Clips, Metal Blind Rivets

1.4 HISTORY OF THE PREPARED FLUTE:

Flutist and composer István Matuz is the pioneer of the prepared flute. Born in 1947, he grew up in Nagykőrös, Hungary under the communist regime's new educational system. His flute instruction was primarily based on pieces by contemporary Hungarian composers. Matuz believes that this instruction sparked his interest in new music.⁴⁸

After studying at the State School of Music, Matuz graduated from the Liszt Academy in 1970. By this point, he had developed many close relationships with the composition students at the academy and had several pieces dedicated to him. In 1972, he began his graduate work at the Conservatoire Supérieur de Musique in Brussels. Matuz opted to take courses in acoustics, an area that sparked his interest. Through these courses, he became acquainted with Pierre Boulez, and eventually showed Boulez the extended technique system that he started to develop.⁴⁹ Boulez later offered Matuz a scholarship to study at the Institut de Recherche et Coordination Acoustique Musique (IRCAM) in Paris.⁵⁰

Matuz's extensive studies led him to believe that acoustics should be an important part of a flutist's education. He believed that flutists should use the

⁴⁸ Izabella Budai, "The Flutist as Co-Creator: Composer-Performer Collaboration in the Flute Music of Hungary" (DMA diss., University of Toronto, 2014), 17.

⁴⁹ Matuz's extended technique system was a categorization of extended techniques, quarter tone fingerings, and effects (Izabella Budai, "The Flutist as Co-Creator: Composer-Performer Collaboration in the Flute Music of Hungary" (DMA diss., University of Toronto, 2014)).

⁵⁰ Izabella Budai, "The Flutist as Co-Creator: Composer-Performer Collaboration in the Flute Music of Hungary" (DMA diss., University of Toronto, 2014), 17-18.

knowledge of acoustics to understand their instrument completely, including basic acoustic concepts of vibrations, difference tones, and the overtone system. This is especially true if they are planning to teach extended techniques. Understanding how a technique actually works helps the flutist perform the technique better, as well as articulate the concept more clearly to students. Flutist Ákos Dratsay remarked that one could hear a significant difference in Matuz's playing because he carried with his sound the knowledge of the instrument.⁵¹

Matuz later became assistant professor at the Brussels Conservatoire Supérieur. As the first flutist to be associated with the New Music Studio, whose members included composer Peter Eötvös, Matuz was deeply indebted to their influences.⁵² The symbiotic relationship between Matuz and Eötvös resulted in many contributions to the new music scene in Hungary. *Windsequenzen*, written by Eötvös, is one of the earliest works written for prepared flute, and was a result of the collaboration between Matuz and Eötvös.

In addition to his own compositions, Matuz's experiments have influenced other flutists and composers. *That's for You* for three flutes, written by István Szigeti, was a commissioned work and direct result of Matuz's influence, and was performed by Matuz and composer and flutist Zoltán Gyöngyössy.⁵³ The second movement of this work

⁵¹ Izabella Budai, "The Flutist as Co-Creator: Composer-Performer Collaboration in the Flute Music of Hungary" (DMA diss., University of Toronto, 2014), 19-20, 22.

⁵² Founded in 1970, the New Music Studio was created to unite performers, creators, and receivers of new music, and to bring Western music to the Hungarian audience that was not supported by the mainstream. Other members included Zoltán Jeney, László Sáy, László Vidovszky, Péter Eötvös and Zoltán Kocsis (Budai, "The Flutist as Co-Creator." p. 15-16).

⁵³ Appendix A.

includes an idea Matuz had experimented with: using cigarette paper and a clarinet mouthpiece in place of the flute head joint.⁵⁴ Gyöngyössi's later work, *Pearls* 2011, which employs the use of cigarette paper and corks, was greatly influenced by Matuz's experiments with prepared flute.

Sadly, Matuz's very innovative ideas took many years for flutists and Hungarian society to accept. Opposition faced him at every turn. In fact, it was not until 1994, when the Hungarian Flute Society awarded Matuz the Doppler Prize, that he felt accepted by the flute community.⁵⁵ In an interview to *Muzsika*, Gyöngyössi stated that flutists in the 21st century still have not embraced the need for knowledge of acoustics, and the science behind their instrument.^{56 57} Matuz knew the acoustical principles behind the preparations that he chose for the flute. He knew what the hypothetical effect would be on the instrument before testing the theory. In fact, he may have chosen materials and placements based on these principles.

Matuz is an important figure in the history of the flute, for he transformed the way the instrument can be used. With over 130 flute compositions to date, some of which involve prepared flute, he has expanded the flute repertoire immensely. His most significant prepared flute collection is the *6 Studii per flauto solo*. He inspired the formation of the Hungarian flute community, later known as the Hungarian Flute

⁵⁴ Izabella Budai, "The Flutist as Co-Creator: Composer-Performer Collaboration in the Flute Music of Hungary" (DMA diss., University of Toronto, 2014), 16-17, 146.

⁵⁵ Other recipients include James Galway and Imre Kovács. (Ibid, 28).

⁵⁶ *Muzsika* is a Hungarian monthly magazine about classical music.

⁵⁷ Izabella Budai, "The Flutist as Co-Creator: Composer-Performer Collaboration in the Flute Music of Hungary" (DMA diss., University of Toronto, 2014), 17-22.

Society, because of his innovations and ability to stimulate the community with interests in contemporary music. His method of systemization of extended techniques, inspired by Bruno Bartolozzi's book *New Sounds for Woodwind*, provides a new realm of sound possibilities on the flute. The systemization is a great reference for composers. Finally, he is a role model for younger flutists, who follow his example of working with living composers and exploring extended techniques.⁵⁸

⁵⁸ Ibid, 17-20.

CHAPTER 2

HOW TO PREPARE THE FLUTE

Flute preparation involves the use of many objects of varying materials, used with a wide range of purposes. The objects discussed in this chapter are organized by their placement on the flute to more easily draw connections to the effects of the specific preparations. These locations include under/on the keys, inside the tube, subtraction of parts, addition of parts from other instruments, and visual/theatrical. Table 2.1, located at the end of the chapter, provides concise information on the information discussed in this chapter. Compositions that employ these objects will be mentioned, followed by a more detailed discussion of these pieces in Chapter 3.

2.1 UNDER/ON THE KEYS:

2.1.1 Cigarette Paper

The addition of cigarette paper transforms the flute into a percussive instrument. The vibration of the paper produces a buzzing, rattling, or snare-drum-like sound. Composers frequently employ this preparation to mimic the sound of non-Western instruments, such as the shakuhachi or membrane flute. Some compositions that require the use of cigarette paper (or rice paper) include Jos Zwaanenburg's *Solo*

for Prepared Flute, István Szigeti's *That's for You*, István Matuz's "Studium 6" from *6 Studii per flauto solo*, Zoltán Gyöngyössi's "VII" from *Pearls*, and Jin Hi Kim's *Tchong*.

Adding cigarette paper is one of the most common preparations of the flute. Available in a range of brands, materials, shapes, sizes, colors and flavors, it is up to the flutist to select the best option for the composition or performance space. More commonly referred to as rolling paper, these products can be purchased anywhere that sells cigarettes: gas stations, convenience stores, et cetera, as well as online retailers. Typical brands include "ZigZag," "OCB," and "EZWIDER."

The materials available for "rolling paper" include flax, rice, organic, cellulose transparent, and hemp. The disadvantage of using the paper made from hemp is that it is thicker than most of the other rolling papers. The thicker the material, the slower the material will vibrate. The shape and size varies, although these differences do not affect the flutist. The flutist will need to trim whichever paper is selected. The color choice may provide an additional level to the visual aspect of the performance. The flutist has the opportunity to experiment with many different materials to help produce the desired sound.

Cigarette paper is typically placed under the A key of an open-hole flute. A rubber band can be placed on either side of the key to keep the paper in place. Adhesive tape can also be used to secure the paper. The size and shape of the paper determines the best method of attachment. It is important that the paper does not reach up into the mechanics of the flute. This will prevent notes from speaking, such as B-flat,

depending on where the paper is located. The rods can be avoided by cutting the top of the paper into an arc. It is important that all ends of the paper are fastened to the flute to avoid migration and affecting other keys.

The cigarette paper is activated when only the ring of the key is depressed. The air will escape from the first open hole, which makes the paper vibrate. The middle finger must be slid backward to uncover the tone hole. This action places the fourth finger at an awkward position to cover its tone hole. To fix this problem, a plug can be placed in the G key to keep the hole covered. A plugged G key can allow the flutist to place the fourth finger comfortably, without the worry of covering the tone hole completely. If a plug is used, the flutist should make sure that the composition does not require quarter tones, glissandos, or other techniques that use an open G tone hole.

Because the paper is thin, it wears out quickly. The same paper should not be used for multiple practice sessions or performances. When the paper loses its integrity, it becomes very difficult to produce any sound.

2.1.2 Plastic bag

A piece of plastic bag can be used in a similar fashion to cigarette paper. The plastic bag is an alternative material that will vibrate to produce a sound. Plastic bags come in various colors, thicknesses, and textures. A flat piece of plastic bag will produce a different sound than a more crinkled piece of plastic bag. The flutist is encouraged to test different plastic bags for an informed selection.

Like the cigarette paper, the piece of plastic bag is placed under the A key on an open hole flute. The G key can be plugged to keep the hole closed in a similar fashion as when using cigarette paper. Similar in durability to the cigarette paper, the plastic bag becomes wet during prolonged use, so a new piece must be used for every practice session or performance.

The plastic bag mimics the sound of the Chinese membrane flute, *dizi*, and produces a buzzing sound that is rich and penetrating.⁵⁹ Composer Ryojun Sasaki mimics the *dizi* in *Imagination Linkage II*.

A buzzing sound can also be created by removing the thumb key of the flute, and using cling film to cover the tone hole. The thumb key is easily removed because it only has a single rod holding it in place.⁶⁰

2.1.3 Aluminum foil

The desire to create percussive sounds on the flute has increased dramatically over the past 30 years. Recent extended techniques to achieve this sound include key clicks and slaps, tongue rams, and beat-boxing. The use of aluminum foil provides another avenue to produce alternative percussive sounds on the flute. In addition to using the foil to close the tube at one end, aluminum foil can also be placed on top of

⁵⁹ The *dizi* is a Chinese transverse flute constructed from bamboo. The top of the tube is closed with a cork and open at the bottom. The instrument consists of a blow hole, membrane hole, and six finger holes. The membrane hole is covered with a *dimo*, or a thin piece of bamboo skin, and attached with a sticky substance, such as peach sap ("Di," *Grove Music Online. Oxford Music Online*, accessed March 5, 2016).

⁶⁰ Trevor Wye, *Fantastic Flutes!: 60+ Things You Can Do with Flutes*. Laggan Bridge: Spartan Press, 2011, 12.

the keys on the flute. This will create a buzzing or rattling sound, akin to a snare drum. It is important to use flat, unused aluminum foil, as the crinkled foil creates a weaker buzzing effect. Composer Ansgar Beste uses aluminum foil as a percussive device in his piece, *Incontro Concertante*.

2.2 INSIDE THE TUBE:

The addition of moving objects inside the flute requires that the instrument be closed off at the foot joint so that the objects will not fall out. To accomplish this, the end of the foot joint should be closed off with aluminum foil or another durable material. A rubber band should be used to ensure that the closing material remains in place throughout the performance. Aluminum foil, in particular, provides the thickness and strength necessary to not puncture when objects hit it. With a thickness of less than 0.2 millimeters, the aluminum foil is still strong enough to withstand the weight of objects. It also adds a percussive effect to the music when the objects hit the foil, as opposed to a more cushioned or lighter weight material, such as cigarette paper.

2.2.1 Beads

Issac Brockshus's composition, *Greytudes*, is the only composition known to the author that employs the use of beads in flute preparation, creating the sound of a rain stick. Beads or other plastic objects can be placed directly inside the flute. Beads of any material can be used, as long as they are not sharp in any way. Testing the beads inside an inexpensive flute before adding them to a professional model is recommended.

Rough or sharp beads could scratch the inside of the tube and cause permanent damage to the flute.

The beads will travel from one end of the flute to the other, depending on the position of the flute. Gravity causes the beads to move, and the angle of the flute will determine the speed the objects will travel. An object with lighter density would be affected by the air more than the beads.

Insertion of beads into the foot joint will not change the sound. The movement of the beads, however, will affect the sounds produced by the flute. The beads interrupt the air stream, causing the pitches to change octaves, intonation, and timbre. In addition, when the beads are located in the head joint, the overtone series is affected, and only high sounds can be produced.

2.2.2 Erasers and earplugs

Used in a similar fashion as the beads, erasers and earplugs are inserted into the flute as moving objects inside the tube. While the foot joint is closed with aluminum foil or other material, the erasers and earplugs are free to travel from one end of the flute to the other depending on the positioning of the flute. Static placement of these objects only affects the sound when they are located in the head joint. With regard to the beads, static placement can only occur when the flute is held with the foot joint raised above the head joint, and kept in that position. Like beads, the erasers and earplugs will affect the overtone series, and only allow high sounds to be produced.

It is important to keep in mind that erasers and some earplugs are uneven in shape, and can create obstructions inside the flute. These jams are difficult to fix while in a performance. For this reason, only a small number of these objects should be used at one time. Unique to his composition, Isaac Brockshus writes for the addition of erasers and earplugs in his piece, *Greytudes*.

2.2.3 Cork

Besides paper, the other most common material to prepare the flute is cork, made from the bark of an oak tree. "One cubic inch of cork consists of not less than 200 million completely enclosed air cells. These cells give cork the attributes of resilience, durability, moisture resistance, thermal insulation and acoustic insulation."⁶¹ The density of cork contrasts with a chunk of paper or other material that could be used to close off the tube. Wine corks or cork stoppers come in many sizes. The cork can be cut in the direction of the pores or cut at an angle. "Poreless" stoppers can be found in many of the cheaper wine bottles. These stoppers are typically smaller in width and easier to cut.

It is difficult to find a wine cork small enough to use in the flute without some alteration beforehand. Corks can be whittled down in size with a knife, but it is next to impossible to maintain roundness and smoothness. Sandpaper can be used to smooth the cork. The unevenness will affect the sound of the flute, because the cork will not

⁶¹ "Frequently Asked Questions," WE Cork, accessed March 5, 2016, <http://www.wecork.com/products/faq/>.

seal off the tube completely. Wine corks also come in different textures or levels of breathability.

Corks can be used in many ways and positioned in various locations on the flute. First, a piece of cork can be used to ensure that a specific key remains closed. For example, cork can be wedged underneath the original cork on the D-sharp key. This action prevents the key from opening until the added cork is removed. Second, cork can be placed inside the head joint or foot joint to affect the sound of the flute. Depending on the placement, the cork can change or influence the overtone series of the flute, or cause notes to either not sound or sound an octave lower than written. Composer Péter Eötvös suggests that the use of modeling clay, instead of the use of a wine cork, improves overall intonation.⁶²

Compositions that require the use of cork include Jos Zwaanenburg's *Solo for Prepared Flute*, István Matuz's "Studium 1" and "Studium 5" from *6 Studii per flauto solo*, Zoltán Gyöngyössi's "III" and "VI" from *Pearls*, Péter Eötvös's *Windsequenzen*, and John Fonville's *Music for Sarah*.

2.2.4 Water

One end of a vinyl hose can be inserted into the body and foot joint of the flute, and the other end placed into a container of water. This means that no water is running through the flute, only air from the flute is channeled into the water through the hose.

⁶² Izabella Budai, "The Flutist as Co-Creator: Composer-Performer Collaboration in the Flute Music of Hungary" (DMA diss., University of Toronto, 2014), 185.

This process can create dripping or bubbling noises. Again, the size of container and level of water will affect the sounds produced by the flute. The use of a microphone is suggested to ensure that the water noises are audible. Compositions that require the use of water include Ansgar Beste's *Incontro Concertante*, which uses a vinyl hose for both the clarinet and flute.

2.2.5 Darts

Darts with suction cups at the end can be positioned inside the flute to prepare the instrument, seen in Figure 2.1. Depending on the placement of the darts, the object will produce beating or interference tones at certain notes throughout the spectrum. This result is because the dart parts the air blown through the tube.



Figure 2.1 Dart with suction cup

It is difficult to insert the darts into the flute because of the suction cups. The cups tend to pop off the end of the dart easily, especially if it has been used previously during practice or performance. Fastening the suction cup to the dart with tape and rubber bands is moderately effective. Electrical tape is the most effective way to ensure the position of the cups remains the same.

The performer must be careful when placing the darts inside the flute. The suction cup is bigger than the tube, the cup bends and curls to fit inside the tube. Open keys provide spaces for the suction cup to expand. If allowed to do so, the cups can

damage the keys, especially if a key is closed on top of a suction cup. Issac Brockshus uses two darts in his piece, *Greytudes*.

2.2.6 Buzzers

Buzzers can be added to the body and foot joint of the flute to distort the sound, seen in Figure 2.2. Found inside a children's toy, the buzzer consists of a rubber plug and a reed-like mechanism that produces sound when air is blown through it. When used without the head joint, the flute can mimic the sound of a crying child, electric guitar, or siren with the change of air direction and speed. In contrast, when the buzzer is used in the foot joint, the buzzer is only activated when the flutist plays a low B3. Issac Brockshus uses two buzzers in his piece, *Greytudes*.



Figure 2.2 Buzzer

2.3 SUBTRACTION OF PARTS

2.3.1 Head joint only

The head joint of the flute can be used separately from the rest of the instrument to produce different sounds. Justyna Kowalska-Lasoń uses only the head joint in *...I Touch the Mountains and They Smoke....* The motion of taking the head joint

in and out of the water while blowing creates sounds like a siren. This motion is similar to inserting a finger in and out of the head joint to change the sound. The size of container and level of water will change the sounds produced by the head joint. Other examples include Augustyn Bloch's *Oratorium fur Orgel, Streicher, und Schlagzeug*, Mauricio Rodriguez *Unnamed*, and Zoltán Gyöngyössi, "III" from *Pearls*.

2.3.2 Body only

The body of the flute is sometimes used alone or without the head joint or foot joint in compositions. The body of the flute alone creates new sounds when used with extended techniques. For example, in *...I Touch the Mountains and They Smoke....*, Kowalska-Lasoń has the flutist yell and sing into the body of the flute, changing the sound.

2.3.3 Foot joint only

The foot joint is used in a similar fashion as the body, requiring the employment of extended techniques. Examples of pieces that require the use of only the foot joint include Fonville's *Music for Sarah*, and Kowalska-Lasoń *...I Touch the Mountains and They Smoke...*

2.3.4 Two parts only

Composers frequently use only two parts of the flute in their compositions. The head joint of the flute can be inserted into the foot joint to create a higher pitched

instrument, much like the piccolo. István Matuz uses this technique in “Studium 2” from *6 Studii per flauto solo*.

The body and foot joint of the flute can be used independently from the head joint. This combination helps to mimic the sound of the shakuhachi when positioned vertically in front of the body. Matuz’s “Studium 3” from *6 Studii per flauto solo* and Fonville’s *Music for Sarah* employs this combination to imitate the Japanese flute.

This setup of the flute can also be used in combination with objects placed on or inside the flute. For example, Brockshus uses the body and foot joint in combination with the insertion of buzzers in the third movement of *Greytudes*.

2.4 ADDITION OF PARTS FROM OTHER INSTRUMENTS

The preparation of the flute is not limited to the addition of objects or the removal of parts of the flute. In fact, parts from other instruments can be added to the flute to alter the sound. The only limitation of this idea is the size of the part.

2.4.1 Clarinet Mouthpiece

A clarinet mouthpiece can fit into the top of the body of the flute. The flute is held vertically in front of the performer, and is played like a clarinet. The flute performer should experiment with different thicknesses of reeds to produce the easiest sound. An example of this preparation can be found in Szigeti’s *That’s for You* for 3 flutes.

2.4.2 Saxophone Mouthpiece

Similar to the clarinet mouthpiece, a saxophone mouthpiece can fit into the body of the flute. The flute is held in the same way as the above preparation, and the most accessible reed should be chosen. Matuz uses this preparation in “Studium 6” from *6 Studii per flauto solo*.

2.5 VISUAL/THEATRICAL

Although most flute preparations change the sound of the flute, some are purely for visual purposes. A balloon can be attached to the end of the flute, and is expanded by blowing air through the mouthpiece of the flute. A small balloon is preferable, because a larger balloon requires more air and more time to blow up the balloon. The longer the balloon takes to inflate, the more cranial pressure for the flutist when the balloon is expanded. To attach the balloon, the open end should be placed around the outside of the bottom part of the foot joint. The balloon may detach from the flute throughout the blowing process, so a rubber band can be placed around the open end of the balloon. A centimeter of the balloon should be attached to the foot joint. The flutist must stretch the balloon before placement. This is important because the balloon will inflate more easily if it has been stretched or expanded previously.

The balloon will only expand when all keys are covered and the flutist blows directly into the mouthpiece. In addition, the balloon will lose air when the flutist stops blowing or breathes. To solve this problem, the flutist must maintain the air pressure by stopping the air with their tongue covering the tone hole. Then, the flutist can breathe

through the nose, and begin blowing again. The performer's cheeks remain expanded through this process. An alternative to maintaining the air pressure is to close the tone hole with the lips while inhaling through the nose.

The result of the balloon preparation can end in either the bursting or deflation of the balloon. Both results are equally valid, and provide different sounds and visual effects. The flutist can deflate the balloon by releasing the tongue from its placement on the tone hole, and the removal of fingers from the keys.

The composer or performer may wish to keep the balloon addition a surprise. In this case, the balloon can be pushed up inside the foot joint after attachment. The cleaning rod of the flute can be used to gently guide the balloon inside the foot joint. The balloon must not come up through any key holes in the foot joint. The balloon can easily appear by fingering a low B and blowing forcefully. Then the balloon can begin to inflate. For the most part, the balloon does not affect the overall sound of the flute. The highest register, however, is affected by this preparation. The pitches and overtones are lowered significantly when the balloon is inside the flute. István Matuz uses a balloon as a visual preparation to the flute in "Studium 4" from *6 Studii per Flauto Solo*, and will be discussed in greater detail in Chapter 3.

Another visual preparation for the flute include Trevor Wye's "iFlute." Besides the unique material of the flute (acrylic or plastic), high intensity L.E.D. lights are linked to proximity switches and attached to thirteen keys of the instrument. To create this flute, three holes are drilled into the back wall of the instrument, and the LEDs are glued

in with adhesive. Two bright LEDs can replace the stopper of the flute, set into a cork, and face down the tube. This will light up the whole flute. A LED can also be placed in the foot joint, facing up the tube. Adding a circuit to the instrument will allow the LEDs to change color, and turn on and off when the flute is moved up and down.⁶³⁶⁴

Perhaps one of the most inventive theatrical preparations for the flute is Christina Kubisch's *Emergency Solos fur Flote solo und Objekte*.⁶⁵ In *Emergency Solos*, or "solos in a state of emergency," objects are used in different contexts to display an artist struggling with his instrument. Boxing gloves, thimbles, and a gas mask are selected by Kubisch to convey the struggle between the role of a woman on stage, and her dual role as a sexual object. The final product attempts to display how Kubisch sees herself as a female performer. For example, the boxing gloves demonstrates the struggle a musician feels when fighting or struggling with their instrument.⁶⁶

"It's So Touchy," the first solo in the set, requires the performer to wear thimbles on the fingers. A play on the role of a housewife, the thimbles restrict the freedom of movement and success of the performer. The duties of a housewife are put on display in stark contrast with the virtuosity of the performer. The thimbles create percussive

⁶³ L.E.D. lights stands for Light-Emitting Diode.

⁶⁴ Trevor Wye, *Fantastic Flutes!: 60+ Things You Can Do with Flutes*. Laggan Bridge: Spartan Press, 2011.

⁶⁵ Appendix A.

⁶⁶ Schnebel, Dieter, Christina Kubisch, Manos Tsangaris, Hans-Karsten Raecke, Sven-Åke Johansson, Paul Fuchs, Erwin Stache, Dodo Schielein, and Andreas Oldörp. *Instrumentales Laboratorium*. [Germany]: BMG Classics, 2004.

sounds when rubbed on the metal of the flute. The thimbles become stuck in between the keys by the end of the piece.⁶⁷

The second solo, “Weekend,” calls for only the body and foot joint of the flute. The flutist must wear a gasmask without filter during performance. The flute is inserted through the opening of the mask, and breathe through the flute body for the entire composition. The resulting sounds create raspy, breathy noises. Perhaps associated with the Vietnam War or other conflicts, the breaths are measured in the composition.⁶⁸

“Erotica,” the third solo in the set, uses a condom over the end of the flute head joint, and the flutist breathes through the mouthpiece. The condom inflates and collapses with the inhalation and exhalation of the flutist. The end of the solo is marked by the bursting of the condom.⁶⁹

2.6 CONCLUSION

The size of the flute is the only limitation for possible flute preparations. The use of metal products is lacking in the prepared flute toolbox, perhaps due to its destructive nature. Many current flute preparations provide new ways for the flute to be used as a percussive instrument, while others alter the timbre, mimic the sound of a non-Western instrument, obstruct the air stream to cause beating, and create novel visual effects to make comments on politics and gender roles.

⁶⁷ Ibid.

⁶⁸ Ibid.

⁶⁹ Ibid.

Table 2.1 Prepared objects, compositions that use them, and the resulting sound.

Under/On the keys	Cigarette paper	1. Zwaanenburg, <i>Solo for Prepared Flute</i> 2. Szigeti, <i>That's for You</i> for 3 flutes 3. Matuz, "Studium 6" from <i>6 Studii per flauto solo</i> 4. Gyöngyössi, "VII" from <i>Pearls</i>	Buzzing, rattling
	Rice paper	1. Kim, <i>Tchong</i>	Buzzing, rattling
	Plastic bag	1. Sasaki, <i>Danpen Rensa II</i>	Buzzing, rattling
	Aluminum foil	1. Beste, <i>Incontro Concertante</i> 2. Brockshus, "I" from <i>Greytudes</i>	Buzzing, rattling
Inside the tube	Beads	1. Brockshus, "I" from <i>Greytudes</i>	Overtone series, intonation, beating
	Erasers & Earplugs	1. Brockshus, "I" from <i>Greytudes</i>	Overtone series, intonation, beating
	Cork	1. Matuz, "Studium 1" from <i>6 Studii per flauto solo</i> 2. Eötvös, <i>Windsequenzen</i> 3. Zwaanenburg, <i>Solo for Prepared Flute</i> 4. Matuz, "Studium 5" from <i>6 Studii per flauto solo</i> 5. Fonville, <i>Music for Sarah</i> 6. Gyöngyössi, "III" from <i>Pearls</i> 7. Gyöngyössi, "VI" from <i>Pearls</i>	Overtone series, note sound octave lower than written
	Water	1. Beste, <i>Incontro Concertante</i>	Bubbles
	Darts	1. Brockshus, "II" from <i>Greytudes</i>	Beating, interference tones
	Buzzers	1. Brockshus, "III" from <i>Greytudes</i>	Distortion of sound
Subtraction of parts	Head joint only	1. Bloch, <i>Oratorium für Orgel, Streicher, und Schlagzeug</i> 2. Rodriguez, <i>Unnamed</i> 3. Kowalska-Lasoń, <i>I Touch the Mountains and They Smoke</i> 4. Gyöngyössi, "III" from <i>Pearls</i>	Shortens length of pipe. Combined with cork – lengthens the effective length of the pipe
	Body only	1. Kowalska-Lasoń, <i>I Touch the Mountains and They Smoke</i>	Airy, used in combination with voice
	Foot joint only	1. Fonville, <i>Music for Sarah</i> 2. Kowalska-Lasoń, <i>I Touch the Mountains and They Smoke</i>	Airy, used in combination with voice
	Head joint and foot joint	1. Matuz, "Studium 2" from <i>6 Studii per flauto solo</i>	Shortens length of pipe, higher pitches
	Body and foot joint	1. Matuz, "Studium 3" from <i>6 Studii per flauto solo</i> 2. Matuz, "Studium 6" from <i>6 Studii per flauto solo</i> 3. Fonville, <i>Music for Sarah</i> 4. Brockshus, "III" from <i>Greytudes</i>	Mimic shakuhachi, used in combination with voice or other preparations
Addition of parts from other instruments	Clarinet	Szigeti, <i>That's for You</i> for 3 flutes	Reed-like sound
	Saxophone	Matuz, "Studium 6" from <i>6 Studii per flauto solo</i>	Reed-like sound
Visual/Theatrical	Balloon	Matuz, "Studium 4" from <i>6 Studii per flauto solo</i>	N/A
	Boxing Gloves	Kubisch, <i>Emergency Solos</i>	N/A
	Gas Mask	Kubisch, <i>Emergency Solos</i>	Breathy
	Condom	Kubisch, <i>Emergency Solos</i>	N/A

CHAPTER 3

A SURVEY OF COMPOSITIONS FOR PREPARED FLUTE

The compositions for prepared flute in this chapter are grouped according to the composer's country of origin. Clear links are found between composers who are writing in similar geographic locations for the prepared flute. In most cases, these composers know and are influenced by each other. Matuz and his colleagues, in particular, have the greatest impact on the literature for prepared flute. Table 3.1, located at the end of the chapter, provides concise information on the information discussed in this chapter.

EUROPE:

3.1 HUNGARY

Péter Eötvös (b. 1944), a Hungarian conductor, professor and composer, was born in Odorheiu Secuiesc/Székelyudvarhely, Szeklerland, Transylvania. He attended and received degrees from Budapest Academy of Music and Hochschule für Musik in Cologne. He conducted the inaugural concert of IRCAM in Paris, at the invitation of Pierre Boulez. Eötvös has conducted and worked with the BBC Symphony Orchestra, Berlin Philharmonic Orchestra, Cleveland Orchestra, London Philharmonia, Munich Philharmonic Orchestra, National Philharmonic Orchestra, the Radio Symphony

Orchestra in Vienna, and many other orchestras.⁷⁰

The compositional output of Péter Eötvös is quite vast, encompassing works for opera, music theatre, vocal ensemble, orchestra, chamber orchestra, instrumental chamber music, electronic music, and portrait-film and documentary-film scores. He has included the flute in many of his compositions for ensembles, but has written only one piece for flute alone, entitled *Cadenza*, which was premiered in Cologne.⁷¹

Eötvös was part of the New Music Studio in Hungary in the 1970s, a group which consisted of active composers including Zoltán Jeney, Laszlo Vidovszky and Zoltán Kocsis. The New Music Studio, established in 1970, was the first Hungarian avant-garde workshop.⁷² Eötvös is a kindred spirit of István Matuz, who is the pioneer of the prepared flute genre. The two composers met at the Film Studio in Budapest in the 1960s and found a common interest in the acoustic principles of sound. Eötvös' chamber piece, *Windsequenzen*, 1975, was a result of their friendship and collaboration. Matuz holds this composition in very high regard, and issued a warning for flute players who attempt to perform it. In a recent interview, he said that "this work demands the most exceptional instrumental technique and musicianship from the performer. We

⁷⁰ "Péter Eötvös," accessed January 24, 2016, <http://eotvospeter.com/biography>.

⁷¹ Ibid.

⁷² During the time of transition from socialism to capitalism, the performances of the works of Hungarian composers had to follow strict guidelines. Experimental music, in particular, was marked with drastic repression until the 1990s (Sores, Zsolt, "Sounds of Europe.").

recommend that only those flutists embark on learning and performing it who can approach a masterpiece with purity and true artistic humility.”⁷³

During one of their many meetings, Matuz was excited to show Eötvös one of his new discoveries that involved the use of a wine cork. When the wine cork was placed in the end of the flute, closing off one end of the flute, two results took place. The first discovery was that the lowest note, B1, sounded an octave lower than written. The inserted cork caused the note to sound an octave lower because the sound waves were forced to travel back and forth four times, doubling the length of the tube, according to Matuz. The second discovery was that only the odd overtones from the harmonic series could be produced. “The constraint of the closed end [of the tube] prevents the column from producing the even harmonics.”⁷⁴ Clarinets, for example, have a closed cylinder at one end, resulting in the elimination of even harmonics in the tone, especially the lower register.

“Windless,” the first movement of *Windsequenzen*, is written for flute with cork, and was inspired by conversations and discoveries with Matuz.⁷⁵ Eötvös changed instrumentation, added and subtracted movements, as well as other alterations which resulted in many versions of *Windsequenzen*. The final form of *Windsequenzen* was published in 2002. One reason for the second edition was to make it more manageable,

⁷³ Izabella Budai, “The Flutist as Co-Creator: Composer-Performer Collaboration in the Flute Music of Hungary” (DMA diss., University of Toronto, 2014), 16, 168-169.

⁷⁴ “Closed Cylinder Air Column,” *HyperPhysics*, accessed March 21, 2016, <http://hyperphysics.phy-astr.gsu.edu/hbase/waves/clocol.html#c1>.

⁷⁵ Izabella Budai, “The Flutist as Co-Creator: Composer-Performer Collaboration in the Flute Music of Hungary” (DMA diss., University of Toronto, 2014), 169.

due to the extreme technical demands on the flutist in the first version. The first movement, “Windless,” written for flute and bass drum, most directly results from the relationship between Eötvös and Matuz. Eötvös has said that this piece would not exist without Matuz.⁷⁶

The 1975 version of *Windsequenzen* is written for flute, bass drum, English horn, tuba, reed organ, and synthesized wind sound. The flute is prepared with a cork in the first movement; other movements utilize numerous passages with quarter tones and other techniques. According to Budai, because of Matuz’s ability to control pitch, he could produce precise difference tones against the reed organ. He achieved this through microtonal fingerings, developed over months of trials. He created a table with his findings, and the result was approximately 230 different fingerings. The substantial number of fingerings is due to the fact that some notes have five or six different fingering options in order to play seamlessly between other notes.⁷⁷ Eötvös withdrew the 1975 and 1989 versions of this work.

The final version of *Windsequenzen*, written in 2002, provided many changes from the 1975 edition. The piece became a suite with eight movements. The instrumentation was slightly different, with the addition of an oboe, two clarinets instead of the reed organ, bass clarinet, double bass, tuba, accordion and bass drum. Because the fingering system Matuz developed was entirely too complicated for the typical flute player, coupled with the fact that Eötvös wanted the piece to be more

⁷⁶ Ibid.

⁷⁷ Ibid, 170-171.

accessible and performed more frequently, the composer notated the flute part differently. The flutist was to tune a quarter tone flat for the movements requiring the most quarter tone fingerings. This solution would eliminate the need for most of the new fingerings.^{78 79}

The 1990s brought many changes to Hungary. János Kádár, the communist leader who ran the country from 1956 was finally removed from power in 1988. The transition from Communism to a democratic society affected musical life in significant ways. Musicians began organizing themselves into associations to represent their interests, a privilege newly granted in the new political order. Classical music concerts were on the rise, with 273 concerts taking place in the capital during the last three months of 1993. This number was a major increase from the twenty percent drop of attendance rate during the communist regime. Summer programs and festivals were revived, and the arts began to thrive again in Hungary.⁸⁰

Rejecting national musical traditions, many Hungarian composers embraced American experimentalism, especially the composers that comprised the New Music Studio. Although the government had changed, it was still conservative. Instead of writing with the current trends that received support from the government and other societies, they wrote in “musical opposition” to the establishment.⁸¹ István Matuz

⁷⁸ Ibid, 171.

⁷⁹ Appendix A.

⁸⁰ Izabella Budai, “The Flutist as Co-Creator: Composer-Performer Collaboration in the Flute Music of Hungary” (DMA diss., University of Toronto, 2014), 21, 26.

⁸¹ Ibid, 15-16.

produced counter cultural works that emphasized the extended possibilities of instruments.

With the belief that flutists have the duty to compose for their own instrument, he began to discover new sounds and techniques that were possible.⁸² Flute players are more apt to experiment with new techniques on their instrument and then either write a composition using these techniques or encourage a composer to. Rarely would a composer choose to experiment on an instrument that he could not play.

Extended techniques are often closely related to the preparation of instruments. Matuz developed the ability to circular breathe, a relatively new extended technique for flutists at the time. Achieving his goal inspired him to work on the *6 Studii per flauto solo*, dedicated to his wife, Katalin VAS. Matuz indicates specific *studii* that should be performed with circular breathing.⁸³

Each *studii* in the cycle uses a form of a newly developed extended technique or theatrical element. Some of the movements involve physical gestures or even self-mocking procedures, as well as instances of tension and drama, with regard to the theatrics of the pieces.⁸⁴

“Studium 1,” “L(élek)zem” is written for prepared C-flute. Hungarian for “I am breathing,” “L(élek)zem is a combination of Hungarian syllables for “spirit, soul” and “I

⁸² Ibid.

⁸³ István Matuz, *6 Studii per Flauto Solo* (Budapest: Akkord Music Publishers, 1990), II.

⁸⁴ Ibid, II.

live.”⁸⁵ For this study, the flute is prepared by pushing a rubber plug or cork four to five millimeters deep into the lower end of the flute. Using a flute with a C foot-joint, the preparation only affects the lowest sounding note, C4. When the flutist plays a C4, the result is a very soft sound one octave lower than the written C4.⁸⁶

Matuz suggests that amplification is not required but is advisable so that the performer’s heartbeats may be heard in the performance. He suggests the placement of a contact microphone, located on the chest above the heart, as the most effective method to accomplish this.⁸⁷

The performer is asked to consider the respective proportions of the time indicators, and make educated decisions based on these proportions, as demonstrated in Figure 3.1. In the notes, he writes that “Studium 1 is a challenge not only instrumentally and physically, but also mentally. Its performance is a test of faith and willpower.”⁸⁸ Similar to other *studii*, the most desirable performance would be one without the use of the score.⁸⁹

⁸⁵ Appendix A.

⁸⁶ Ibid, 6-8.

⁸⁷ Ibid.

⁸⁸ Ibid.

⁸⁹ Ibid.

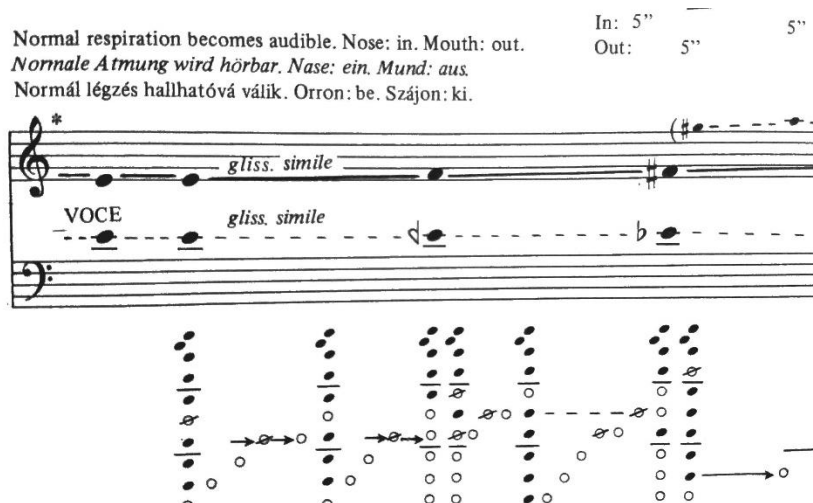


Figure 3.1 Example of time indicators in "Studium 1."⁹⁰

"Studium 2," "Head Joints Foot Joint" for body-less B-foot flute, calls for a preparation in which the body of the flute is removed and the head joint and foot joint are joined together. The head joint can fit easily inside the foot joint, but not securely. The foot joint is not kept in the same position throughout the whole piece; rather the performer is constantly pulling the foot joint out farther from the head joint during the work. At the end of the performance, the player is instructed to let the head joint fall on his left foot, and let the foot joint fall to the floor.⁹¹

When the body of the flute is removed, the length of the flute is cut approximately in half, thereby doubling the resonant frequency. The formula for the resonant frequency, or the lowest sounding pitch, is the speed of sound divided by two times the length of the tube.⁹² Therefore, the frequency is inversely proportional to the

⁹⁰ István Matuz, *6 Studii per Flauto Solo* (Budapest: Akkord Music Publishers, 1990), 6.

⁹¹ Ibid, 9-13.

⁹² "Flute Acoustics: An Introduction," The University of New South Wales School of Physics, accessed March 6, 2016, <https://newt.phys.unsw.edu.au/jw/fluteacoustics.html>.

length. This translates into a change of about an octave, given that the flute is not cut exactly in half. The opening of the foot joint keys will result in mistuned pitches, because the location of the keys are determined based on the use of the body, and therefore, full length of the flute.

This *studii* also includes what the composer calls ‘positive’ and ‘negative’ percussive effects, and must be performed from memory. Similar to the extended technique of key clicks, these percussive effects are achieved by opening as well as closing the keys, without the use of air. Positive percussive effects, marked as (+) in the score, are achieved by swift, intense closing of the keys indicated. Negative percussive effects are accomplished by rapid opening of the keys, marked as (-) in the score. The opening of the keys will produce an amplified sound due to the setup of head joint and foot joint.⁹³

Normally, the flutist would put the pinky of the right hand on the C-sharp key, and C and B rollers. Instead, the flutist must place fingers 2, 3, and 4 on the actual keys of the foot joint, as illustrated in Figure 3.2. When the finger is lifted and the key is opened, a pitch is produced.⁹⁴

⁹³ István Matuz, *6 Studii per Flauto Solo* (Budapest: Akkord Music Publishers, 1990), 9-13.

⁹⁴ Ibid.

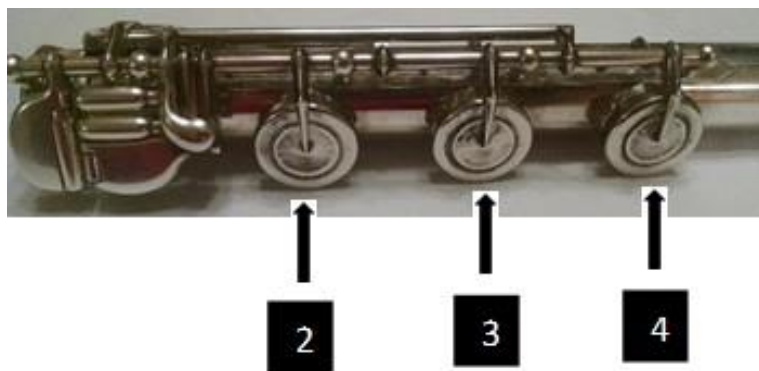


Figure 3.2 Position of fingers for “Studium 2.”

The symbols are found to the left of the finger number associated with the action. For example, the first note in the score calls for a B-flat. The numbering system located under the staff contains 2 +3 +4, as illustrated in Figure 3.3. In other words, the flutist begins the piece with key corresponding with the second finger depressed. Fingers three and four close their respective keys rapidly, creating a percussive effect. The next note, D5, has a -4 written below the staff. This indicates a negative percussive effect for finger 4, and the performer should open the key swiftly. The score provides these numberings below the first stave in brackets, with “sim.” Marked beside the closing bracket. These patterns do not appear again in the score.⁹⁵

⁹⁵ István Matuz, *6 Studii per Flauto Solo* (Budapest: Akkord Music Publishers, 1990), 9-13.

A B - footjoint only
H - Fuß allein
H - láb egyedül
+ and - percussive effects
+ und - Schlageffekte
+ és - ütőeffektusok

Tempo: ♩ = 144 - 160

Fingering ostinato:
Fingerostinato:
Ujjazatosztinató:

2
+3 -3 +3-3+3 -3 +3-3+3 -3
+4 -4 +4 -4 +4 -4

Figure 3.3 Positive and negative percussive effects in “Studium 2.”⁹⁶

Each section leads into the next as the piece gradually increases in difficulty and numbers of techniques. For example, the piece begins with the head joint and foot joint apart from each other. Instead, the flutist is only producing percussive effects the foot joint, as seen in Figure 3.3. Gradually, the head joint is attached to the foot joint, still focused on the percussive effects without the use of air. When the performer blows through the head joint, the flute plays a variation on three pitches: B4, C-sharp 5, and D-sharp 5. The subsequent sections add mordents, octaves, multiphonics, and sforzandos. Later, the voice is added to the mix. The end of the piece is characterized by the performer bowing while playing the last four bars. The head joint and foot joint are close to the feet of the flutist at this point because the flutist is bowing. From this position, the flutist lets the head joint fall on the left foot, and the foot joint to the floor. This is one of the many theatrical aspects that Matuz incorporates in his pieces.⁹⁷

“Studium 3”: “Sakura, Sakura” is based on the Japanese folk tune of the same name. Composed for the Congress of the Japan Flautists’ Association in 1989, István

⁹⁶ Ibid, 9.

⁹⁷ István Matuz, *6 Studii per Flauto Solo* (Budapest: Akkord Music Publishers, 1990), 9-13.

Matuz premiered this *studii* at this congress in Niigata City. This piece is about the spring blossoming of the cherry trees, as “Sakura” is the Japanese word for cherry. Written for Böehm flute without a head joint, the intent is for the flute to sound similar to the Japanese shakuhachi.⁹⁸ The flutist blows into the flute vertically in the central position in front of the body, as well as to the right or left, resulting in diverse timbres. The blowing of the flute to the right or the left is a reference to the Japanese bamboo flute, which is blown in the same directions.⁹⁹

The removal of the head joint means that the flutist is essentially blowing across a pipe that is open on both ends. The flute is a different length, making the resonant tone a third higher. The edge of the body does not cut the air like the embouchure hole is designed to do.

One unusual aspect about this movement is that the key signature contains two flats, but those flats are E-flat and A-flat, instead of the typical B-flat and E-flat, illustrated in Figure 3.5. Perhaps one reason for this unique choice of key signature is because there are no B-naturals or B-flats in the score whatsoever until the last 15 measures of the piece. It is here that the tempo marking changes to $\text{♩} = 60$, and the key signature is back to normal, with two flats as B-flat and E-flat.¹⁰⁰

⁹⁸ Appendix A.

⁹⁹ Ibid, 14-15, 15/a, 15/b.

¹⁰⁰ István Matuz, *6 Studii per Flauto Solo* (Budapest: Akkord Music Publishers, 1990), 14-15, 15/a, 15/b.



bursting of the red balloon, symbolically expressing the composer's opinion of communism.¹⁰³

Although the flute preparation in this piece only affects the upper register, and the balloon only appears at the end of the piece, this movement is an important expression of the cultural context that influenced the composer. The inflation of a balloon through the flute had never been done before. The visual component of this piece is engaging for both performer and audience.

Dominated by the ostinato pattern of (E4, B4, D5, C5, B4, A4, G4), Matuz incorporates varying articulations and note groupings to hold the audience's interest. The piece begins at $\text{♩} = 84-88$. Later in the piece, which does not contain measure numbers, the flutist is called upon to speak at the downbeat of each grouping, starting with "one" to "four," and in repetition. To further increase the drama, on the repeat of this section, the flutist is to continue the melody notes *ad lib* while marching. After this has gone on for some time, the flutist is instructed to "Stop!" (marching), but to continue playing. The ostinato continues, with *rallentando* marked above the staff. Next, the flutist is to speak "The liberty" over a sequence of eighth notes. Four groupings of notes follow, with "TK" and "Brutally" written beneath the staff. The figures are written in a descending motion, but only the first pitch of each grouping is notated, as illustrated in Figure 3.5.¹⁰⁴

¹⁰³ István Matuz, *6 Studii per Flauto Solo* (Budapest: Akkord Music Publishers, 1990), 16-19.

¹⁰⁴ *Ibid*, 16-19.

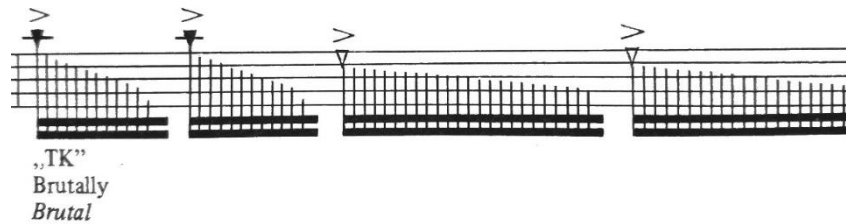


Figure 3.5 Brutal double tonguing.¹⁰⁵

At $J = 72$, the flutist is to be speaking into the flute “Fúj-já-tok, fu-új-já-tok, Az egész vi-lá-got,” which translates to “Blow, blow the whole world.” The end of the piece has arrived with the symbol of an “x” with a stem, and the indication below that the embouchure is now to be covered, and the balloon appears. The flutist begins blowing up the balloon while singing into the flute “Fúj-já-tok, fu-új-já-tok!” This is to be repeated until the balloon explodes, as illustrated in Figure 3.6.¹⁰⁶



Figure 3.6 Blowing up the balloon.¹⁰⁷

Many of the naturally closed keys on the flute will blow open because of the intense sustained air pressure. These keys include the D-sharp key and C-sharp key, among others. The D-sharp key can be forced to remain closed by wedging a piece of

¹⁰⁵ Ibid, 18.

¹⁰⁶ Ibid, 16-19.

¹⁰⁷ Ibid, 18.

cork under the cork of the key. This action is only acceptable if that key is not required throughout the piece, as the key will remain closed until the cork is removed. It is likely that the flutist is incapable of closing every key on his or her own. Therefore, an assistant is required on stage. The division of jobs is up to the performer, but it is recommended that the assistant close the keys on the bottom half of the flute, and the performer be responsible for the top half of the flute. The flutist may wish to roll the head joint inward provide more access to the embouchure hole.

“Studium 5,” titled “Dies Irae,” is written for prepared and amplified C flute with split-E mechanism. The objects needed for this study include a rubber plug or cork and a microphone placed in a specific location on the flute. The rubber plug or cork should be inserted 4-5 millimeters deep inside the foot joint of the flute. Although not considered a preparation, the amplification of the prepared flute helps to bring out subtle sounds made possible because of the preparation. The microphone should be fixed in place in the foot joint rather than on the head joint. Matuz suggests a “Barkus-Berry” flute microphone as a possible option for this movement. An assistant can be used to help set the volume of the microphone for different points in the score.¹⁰⁸

István Matuz employs the use of “double trills,” also referred to as “double tremolos” in this study, which he notates as “Dtr.” “Double trills” are trills or tremolos that happen in both the left and right hands at the same time. These trills are illustrated in Figure 3.7. Because of these “double trills,” Matuz suggests that the performer be

¹⁰⁸ István Matuz, *6 Studii per Flauto Solo* (Budapest: Akkord Music Publishers, 1990), 20-22.

seated during this movement, and support the foot joint on the right knee to maintain stability through these passages.¹⁰⁹

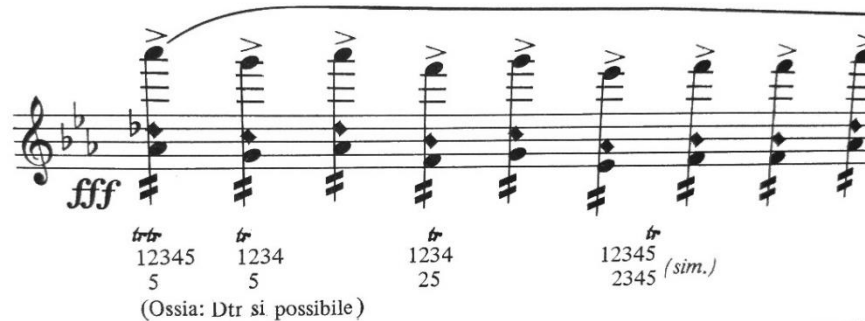


Figure 3.7 Double trills.¹¹⁰

This study explores trills and tremolos throughout the entire movement. There are no regular bar lines, rather bar dashes interspersed occasionally. Bar lines, or breaks, are written where Matuz has indicated that the flutist can breathe. The tempo is very slow, starting the piece at $\text{♩} = 44-48$, and ending at $\text{♩} = 40$. The indicators for turning on the amplification are located above the staff underneath the overhang that stretches the length of duration of the amplification.¹¹¹

The fingerings for the combinations of notes Matuz writes are located beneath the staff in number form. The slash through a number indicates that the finger must only press the ring of the key, and not depress the key entirely. Some finger combinations will require additional practice time to achieve because they require more finger independence than the flutist might be used to.

¹⁰⁹ Ibid.

¹¹⁰ Ibid, p. 21.

¹¹¹ Ibid.

“Studium 6”: “Headlessness,” a theatrical work, calls for specific props, stage arrangement, and preparation of the flute. The props include a flute with its case, a soprano saxophone mouthpiece with reed, cigarette paper, a handkerchief, the “Score” (a green piece of paper labeled “MOZART KONZERT” on the front) included in *6 studii per flauto solo* score, a music stand, and a closed piano or chair. The piece should be played from memory, thus the MOZART KONZERT is just a dummy score.¹¹²

The performance begins with the performer announcing to the audience: “The flute, like the human body, consists of three parts. These are as follows: the head, the body and the foot.” A visual piece, Matuz says that “Headlessness” requires a sense of humor, self-mockery, and a vivid imagination. The performer is free to improvise variations on the sketch provided in the score. The flutist must be familiar with the shakuhachi embouchure, in which the instrument is located in the center of the body. During the performance, the “headless” flute must be played vertically to the left and right of the body. The flutist must also be familiar with singing, and the obvious requirement of producing a sound with the saxophone mouthpiece.¹¹³

To begin the performance, the flutist strolls excitedly onto the stage, with the flute case and score under his or her arm and begins her daily routine; breathing exercises, yoga, lip, tongue and syllable exercises. After all of this, she realizes that she has forgotten her head joint.¹¹⁴

¹¹² István Matuz, *6 Studii per Flauto Solo* (Budapest: Akkord Music Publishers, 1990), 23-29.

¹¹³ Ibid.

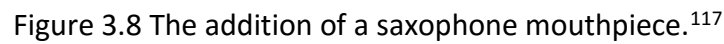
¹¹⁴ Ibid.

The music begins with the flutist performing on the body and foot joint of the flute with a shakuhachi embouchure. This idea relates back to “Studium 3,” which is inspired by the shakuhachi sound. “Studium 6” includes excerpts from Mozart’s flute *Concerto in G Major*, with scripted theatrics interspersed between sections of the work. The cigarette paper is placed under the A key before the tempo change to $J = 100$. Like situations mentioned earlier, the cigarette paper is activated and begins vibrating when the tone hole is uncovered on the A key. In this movement, the cigarette paper is used as part of the overall theatrics of the movement, and not as a statement or percussive effect. In fact, the performer is asked to beat on the floor with her foot during the section that the cigarette paper is in use.¹¹⁵

After more theatrics, the flutist inserts the saxophone mouthpiece into the body of the flute. The flutist proceeds to play in this setup until the end of the piece. With this new preparation, the flutist is able to produce lower tones than can be produced without the preparation. These tones include A3, G3, and F-sharp 3. There are no new flute fingerings written below these notes, so Matuz writes a letter under each tone, symbolizing the fingering to be used to achieve these notes.¹¹⁶ For example, in Figure 3.8, the first note is a written D4. The flutist is not to use the typical fingering associated with a D4. Instead, the flutist must use the fingering associated with a G, located underneath the written pitch.

¹¹⁵ István Matuz, *6 Studii per Flauto Solo* (Budapest: Akkord Music Publishers, 1990), 23-29.

¹¹⁶ Ibid.



This movement, with its emphasis on theatricality, is a sort of social commentary on the preparation a musician undertakes before a performance. Matuz seems to poke fun at typical actions done by musicians, such as blowing saliva out from under a key. Many musicians stretch or do yoga before they begin practice sessions or performances. Matuz provides a glimpse into the life of a musician, and the inner thoughts that happen throughout performances. For example, many musicians have nightmares that they walk on stage and forget their music, or forget how to play their instrument. In this *studii*, the musician has forgotten a main part of the instrument, and has a saxophone

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mouthpiece in its place. This seems like a nightmare that a musician might have before a performance.

Matuz did not experiment with these preparations in isolation. Instead, he shared his innovations with the flutists and composers around him. One such composer, Zoltán Gyöngyössi, was inspired by the preparations Matuz was doing.

Zoltán Gyöngyössi, a Hungarian flutist, teacher and composer, was born in Komló in 1958. He studied at the Liszt Academy with Henrik Pröhle in 1976. A pianist as well as a flutist from a young age, Gyöngyössi was inspired by and excited about new music.¹¹⁸ This interest was partially fueled by his friendship with István Matuz. Matuz introduced Gyöngyössi to the extended techniques of the flute at their frequent meetings during the Academy years. Gyöngyössi later substituted for Matuz at the New Music Studio.¹¹⁹

After graduation from the Liszt Academy, Gyöngyössi received a scholarship to attend IRCAM. While at the institute, he became acquainted with Pierre-Yves Artaud and Robert Aitken.¹²⁰ He turned down the second flute position with the Berlin Philharmonic in 1982 to instead focus on composition, contemporary music performance, and teaching. He played with the Budapest Festival Orchestra, toured with Ensemble Modern, and played with the Hungarian New Music Studio. His teaching

¹¹⁸ Zoltan Gyöngyössi, *Pearls: for flute solo* (Budapest: Akkord, 2012), 4.

¹¹⁹ Izabella Budai, "The Flutist as Co-Creator: Composer-Performer Collaboration in the Flute Music of Hungary" (DMA diss., University of Toronto, 2014), 21.

¹²⁰ *Ibid*, 21-22.

position at the Bartók Conservatory increased his compositional sphere of influence.¹²¹

His excellence in teaching helped to make the Hungarian flute school internationally recognized.¹²²

Gyöngyössy eventually became Professor of Flute at the Ferenc Liszt University of Music in Budapest. He was awarded many prizes and accolades throughout his career; two of the most important were the Liszt Prize in 1993, and the Artisjus Music Foundation prize for interpreting contemporary Hungarian music with excellence. Gyöngyössy's solo career in the 1990s was one of the busiest of Hungarian concert life. He died in 2011 after a tragic car accident. His legacy is preserved on numerous CDs and recordings.¹²³

Pearls, published in 2011, is a series of pieces dedicated to Gyöngyössy's colleagues and close friends. Written primarily as pieces for Gyöngyössy to perform himself, the score lacks details such as dynamics. He also never pushed for the work's publication. The current publication of these pieces is edited by Zsolt Romos, a friend and collaborator of the composer. The character and tempo indications in the published score were added by Romos.

The epigraph from *Pearls* states: "the uncompromising search for new ideas, love, honour and, above all, HUMOUR for the amusement of others and, of course, ourselves." Each 'pearl' is named after a different composer or performer in order to

¹²¹ Ibid, 21-22.

¹²² Zoltan Gyöngyössy, *Pearls: for flute solo* (Budapest: Akkord, 2012), 4.

¹²³ Ibid.

pay homage them. These pearls recreate the style, character, and attitude or manner of the person. As an innovator and lover of extended techniques, Gyöngyössi also paid homage to his colleagues and friends who were major influences in this new trend. Published as seven unique 'pearls,' this study will focus on the movements that incorporate the use of a prepared flute: *Pearls* III, VI, and VII.¹²⁴

Hommage à András Szöllösi, movement III, is dedicated to András Szöllösi, a composer from Transylvania. He was the creator of an index of works by the Hungarian composer Béla Bartók, known as the Szöllösi index. Szöllösi won the Kossuth Prize, the highest recognition of the Hungarian state, in 1985.¹²⁵

Movement III calls for the performer to use only the head joint of the flute. A rubber cork or plug should be attached to the top of a stick so that the cork can be easily slid into the head joint. The cork should create an almost airtight seal. The stick is used to move the cork in and out in order to change pitches. These changes vary from gradual to sudden. The score states that the pitches notated on the staff are relative. This is because the length of each head joint differs, and will vary the sound produced. The size of the plug will also determine the pitches produced by the head joint. Unlike the use of a finger to change the pitches of the head joint, the cork provides more of an airtight seal, therefore a more focused and less airy sound.¹²⁶ Closing the head joint on the end results in a change of approximately an octave lower than normal. This is because the

¹²⁴ Ibid.

¹²⁵ "András Szöllösi," accessed March 8, 2016, https://en.wikipedia.org/w/index.php?title=Andr%C3%A1s_Sz%C5%91ll%C5%91sy&oldid=700533546

¹²⁶ Zoltan Gyöngyössi, *Pearls: for flute solo* (Budapest: Akkord, 2012), 7.

flutist is doubling the effective length of the pipe, and producing a tube that is closed on one end. In contrast to previous pieces where cork is added to the foot joint to produce a pitch an octave lower than written when fingering the lowest note, B1, the addition of cork inside the head joint modifies all of the pitches produced by at least an octave.

Subtitled “With surging energy...,” the first section of movement III is written in chant-like notation, free from bar lines or stems. The notated pitches span a very small range, given that the pitches are produced through only the head joint and the cork. The second and third sections include glissandos performed by the flute as well as the voice. The fourth section of movement III is labeled *quasi improvvisando* below the staff. The first and last pitches are notated on each of the four lines, with a jagged line ascending and descending between the two pitches. The duration of the improvised section is not notated in the score, probably because Gyöngyössy knew how long he wanted to play, and did not need to notate that for himself.¹²⁷

Movement VI, *Hommage à Aurèle Nicolet* was written in honor of Aurèle Nicolet, a Swiss flutist, and winner of the *premier prix* for flute at the Paris Conservatoire, as well as first prize winner in the Geneva International Music Competition in 1948.¹²⁸ This movement requires the use of a cork cut in half. The cork is then placed into the open end of the head joint. This action cuts the bore in half. The body and foot joint are then put together as usual, and the flute is to be played normally. The half cork in the head

¹²⁷ Ibid.

¹²⁸ “Aurèle Nicolet,” Jürg Stenzl, Grove Music Online, accessed March 8, 2016, http://www.oxfordmusiconline.com.pallas2.tcl.sc.edu/subscriber/article/grove/music/19900?q=aurele+nicolet&search=quick&pos=1&_start=1

joint will produce partial and difference tones that sound like distorted multiphonics. In a similar fashion as movement III, this movement lacks specific phrasing, dynamics, or places to breathe. The flutist should make decisions about breathing and phrasing, and feel free to use some artistic liberty for phrasing and direction.¹²⁹

“With fast, impulsive movement...,” is the subtitle for Movement VI. It is written in chant-like notation, in a similar fashion as movement III, meaning that each pitch is given the same rhythmic duration. Free from bar lines or a time signature, the tempo is at a very fast pace, $\text{♩} = 208$, Presto. With the intent perhaps to discover all of the possible distorted, fuzzy, or cracked pitches through the range of the flute, the movement cycles through the different ranges of the flute. No breath marks are indicated until the end, so the flutist must make educated decisions about where to breathe. These decisions should be based on how the flutist decides to phrase the music. The movement contains no dynamic markings until the last line of the piece. The end of the movement contains two fermatas on C5 and C-sharp 5, a three note slurred grouping of D-sharp 4, E4, and G-sharp 4, and then the rest of the staff is empty. This is interesting because the C5 and C-sharp 5 sound relatively normal with the flute preparation, but the last three notes remind the audience that something about the flute is different, with the hollow, lowered tones. There is a fermata above the empty staff at the very end of the piece, illustrated in Figure 3.9. Perhaps this is to indicate a moment of silence to end the movement.¹³⁰

¹²⁹ Zoltan Gyöngyössi, *Pearls: for flute solo* (Budapest: Akkord, 2012), 10.

¹³⁰ Ibid.



Figure 3.9 Fermata.¹³¹

Before the final three notes, the flutist lands on two notes with fermatas, C natural 5 and C-sharp 5. These pitches are seemingly less affected by the preparation than the other pitches, so the audience is reminded of the normal sound of the flute. The piece ends with three pitches that are affected by the preparation of the cork.

Hommage à Heinz Holliger, movement VII, is named for Heinz Holliger, a Swiss oboist, conductor and composer born in 1939. He is known for his exemplary phrasing and new effects on the oboe. As a composer, he received a prize from the Schweizerischer Tonkünstlerverein in 1985, and was also awarded an honorary doctorate from Zürich University in 1988.¹³²

Movement VII requires that the flute be prepared with cigarette paper. The piece of cigarette paper is placed under the A key. The cigarette paper buzzes when the key is opened. According to the score, this preparation is requested in order to produce a sound that is a blend of an oboe and flute tone. The buzzing sound is indicated with a “*” and a waving line below the staff.¹³³

¹³¹ Ibid.

¹³² “Heinz Holliger”, Grove Music Online, accessed March 6, 2016, http://www.oxfordmusiconline.com.pallas2.tcl.sc.edu/subscriber/article/grove/music/13230?q=Heinz+Holliger&search=quick&pos=1&_start=1

¹³³ Zoltan Gyöngyössi, *Pearls: for flute solo* (Budapest: Akkord, 2012), 11.

Normally, there is a pitch change of approximately a quarter tone between the A key with the tone hole covered versus uncovered. Instead, with the addition of the cigarette paper, the pitch remains the same between a covered and uncovered A key while both are depressed.

Subtitled “Drop by drop, note by note...,” movement VII begins with a technique notated in the score as a “trumpet embouchure.” This extended technique is achieved by buzzing the lips on the blow hole of the head joint. This technique allows the pitches in Figure 3.10 to be produced, which are below the range of the instrument.¹³⁴ This technique also adds a dramatic element to the piece.



Figure 3.10 Trumpet embouchure.¹³⁵

3.2 POLAND

Organist and composer Augustyn Bloch was born in Grudziądz, Poland in 1929. His interest in the organ originated with his father, who was the organist at the Grudziadz parish church. He attended the National Higher School of Music, now known as the Academy of Music from 1950-1959, where he studied composition and organ. During his

¹³⁴ Ibid.

¹³⁵ Ibid.

studies with organist Feliks Raczkowski, Bloch performed in many organ concerts in Oliwa, Wrocław, and Warsaw. Eventually, his focus changed from performing to composing.¹³⁶

Bloch held a contract with the Polish Radio Theatre for twenty-three years to write music for the radio's plays. These compositions for children earned him the Radio and Television Committee's award. Bloch also held many important positions during his lifetime, including Vice President of the Association of Polish Composers, and chair of the Program Committee of the "Warsaw Autumn" International Festival of Contemporary Music. Bloch was a prizewinner in many international composition competitions, including those in Vercelli and Monaco, UNESCO's International Composers' Tribune in Paris (1969), the Brighton Festival award and the Association of Polish Composers' annual award in 1981.¹³⁷

Bloch's musical interests and influences are varied; they include neoclassicism, dodecaphony, and unusual sound effects and experimentation. These influences can be found in all of his compositions, including his religious works. He was also greatly influenced by the talented singer Halina Lukomska, who was his wife. She had the privilege of premiering most of Bloch's vocal pieces.¹³⁸

Oratorium, written in 1981-1982, was composed for organ, strings and percussion. This is an expansion of the original definition of percussion to include prepared flutes. The score calls for organ solo, nine violins, three violas, two

¹³⁶ "Augustyn Bloch | Artist," Culture.pl, accessed February 3, 2016, <http://culture.pl/en/artist/augustyn-bloch>.

¹³⁷ Ibid.

¹³⁸ Ibid.

violoncellos, a contrabass, and percussion parts I and II. Instrumentation for percussion I and II include prepared flutes, snare drum, wooden blocks, timpani, and bells. The flute is prepared by using only the head joint of the flute.¹³⁹ This piece was selected for this study because it is one of the few ensemble pieces that call for prepared flute. It is also the first piece to employ the use of multiple prepared flutes with different compositional lines.¹⁴⁰

Composed as four movements entitled “Seufzer,” “Tränen,” “Kummer,” and “Not,” the work is twenty-four minutes long. “Seufzer,” or “Sigh,” the movement that employs the prepared flute, is six minutes long. This movement requires the flutist to slide from one pitch to another using either a wooden peg or the flutist’s finger. The head joint slides take place in the beginning while the strings are holding a note in unison. Later, the strings have more varied notes and rhythms while the flutes slide between pitches.¹⁴¹

As discussed previously, the use of the finger changes the tube from open at both ends to closed off at one end. The tube is only completely closed off when the finger is fully inserted into the head joint. Otherwise, there is space around the object or finger for air to escape.

Fifty-six years after the birth of Augustyn Bloch, a new Polish composer was born who would later write for the prepared flute as well. Flutist, pianist, composer and

¹³⁹ Augustyn Bloch, *Oratorium na organy, smyczki i perkusję*, (Kraków: Polskie Wydawn Muzyczne, 1982).

¹⁴⁰ Appendix A.

¹⁴¹ Augustyn Bloch, *Oratorium na organy, smyczki i perkusję*, (Kraków: Polskie Wydawn Muzyczne, 1982).

improviser Justyna Kowalska-Lasoń was born in Katowice, Poland in 1985. A graduate of the Karol Szymanowski Academy of Music in Katowice, she earned a master's degree under the tutelage of Aleksander Lasoń. A member of the Polish Composers Association and ZAIKS, she was featured in the New Generation of Polish Composers (2011) calendar, alongside Mikolaj Górecki and Pawel Lukaszewski.¹⁴²

The works of Kowalska-Lasoń have been performed by many prestigious ensembles, including the National Polish Radio Symphony Orchestra, Rzeszów Philharmonic Orchestra, and the AUKSO chamber orchestra. A performer as well as a composer, Kowalska-Lasoń is a co-founder of the AI Players, an electronic improvisation group.¹⁴³

Written during the summer of 2011, *I Touch the Mountains and They Smoke*, for prepared flute solo, was written during a time of respite for the composer, a holiday in the highlands complete with hiking, freshly cut grass, and striped hammocks. In the score, Kowalska-Lasoń states that the following poem is the main comment on the piece:¹⁴⁴

¹⁴² Justyna Kowalska-Lasoń, *...I Touch the Mountains, and They Smoke...*, (Kraków: Polskie Wydawnictwo Muzyczne, 2011), 18.

¹⁴³ Ibid.

¹⁴⁴ Ibid, 18-19.

“Of the Tatras”

I hear:
The space stoned by the un-exploded roar of rock
This – the water howling as it’s ripped from its bearing by the fall
And
Thundering silence
This world, baffled by a startled glance
I’ll hush (...)
(...) It’s the clash
of the pick axe
stripped of all echo,
it’s just your whole world
Shrunk in my fist on the boulder scree
This – a crest struck down by the fierce heartbeat
Against the grief – it is so little!
And the dread – so vast!
How light it is, to not let go
To hold the peak and not to drop
When as you hang
the barren Earth turns round in sight
its landscape flipping upside down
the sky thrust down into the abyss (...)¹⁴⁵

Julian Pryzboś

translated by Joanna Trafas

I Touch the Mountains and They Smoke requires the disassembly of the instrument as preparation, as well as the use of water. At different points in the composition, the flute is disassembled into just the body, just the head joint, and only the head joint and body. The score indicates these changes by three vertical boxes, with each box symbolizing a part of the flute. The parts of the flute required contain a dot in the box. Time is written into the score for assembly and disassembly by rests with

¹⁴⁵ Ibid, 19.

fermatas. This permits the performer to take as much time as necessary to properly prepare the flute for the next section.^{146 147}

Water is also used to prepare the flute for this composition. The performer is instructed to obtain a container, such as a bowl or basin, about ten centimeters in height, and fifteen centimeters in diameter. The container is to be 3/4ths filled with water. Only the head joint comes into contact with the water, so the instrument is not damaged in any way. The water is used to imitate an alarm siren. The player must arch his head to submerge the head joint in and out of the water while blowing. The score provides the indication to use only the head joint, with a dot located only in the top of three vertical boxes, and a "W." located beneath the boxes to indicate playing in the water. A diagonal line is used to direct the performer to submerge the head joint into the water and remove the head joint from the water, as illustrated in Figure 3.11. When the line is located above the staff, the head joint is to be out of the water. The line through the staff and beneath the staff indicates that the head joint is located in the water. The sound produced by the head joint is lowered as the head joint is brought out of the water.¹⁴⁸

¹⁴⁶ Justyna Kowalska-Lasoń, *...I Touch the Mountains, and They Smoke...*, (Kraków: Polskie Wydawnictwo Muzyczne, 2011).

¹⁴⁷ Appendix A.

¹⁴⁸ Ibid.

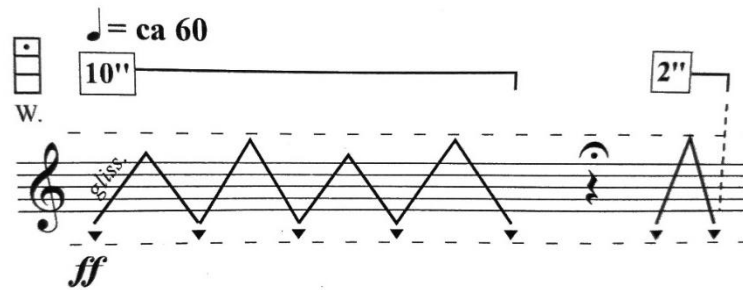


Figure 3.11 Directions on submerging the head joint.¹⁴⁹

The pitch change results in an octave difference when the head joint hits the water, as this action turns the head joint into a closed tube: the more water, the shorter the pipe, thus raising the pitch. As the head joint nears the water in the container, the pitch lowers slightly.

At a specific point in the piece, the flutist is to remove the head joint and foot joint, and use only the body of the flute. With the body of the flute positioned vertically in front of the performer, the flutist is to finger notes in a descending glissando fashion while yelling or singing different vowel or consonants as directed in the score. In Figure 3.12, the consonant changes from a “Y” to an “H,” while the flutist is singing in imitation of an alarm siren.¹⁵⁰ Consonants are also used to produce percussive sounds, as illustrated in Figure 3.13.

¹⁴⁹ Justyna Kowalska-Lasoń, *...I Touch the Mountains, and They Smoke...*, (Kraków: Polskie Wydawnictwo Muzyczne, 2011), 5.

¹⁵⁰ Ibid.

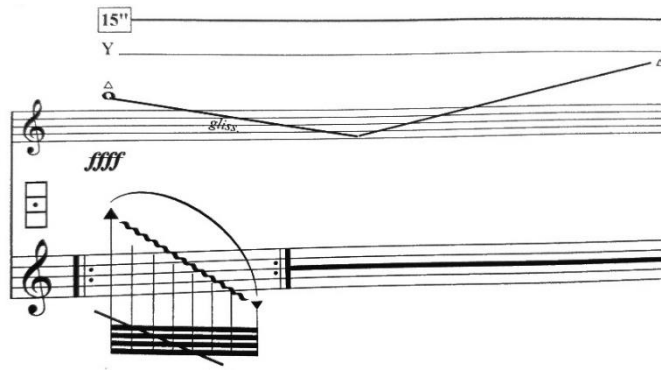


Figure 3.12 The use of vowels in flute preparation.¹⁵¹

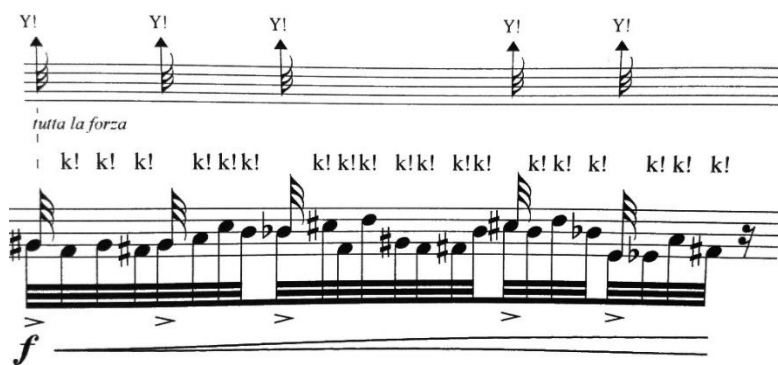


Figure 3.13 Percussive sounds.¹⁵²

Extended techniques are used in prepared flute compositions to further stretch the boundaries of the sound produced by the flute. The extended techniques are affected by the preparations, and new sounds are produced. Kowalska-Lasoń calls on the performer to incorporate many extended techniques. The flutist must play and sing the highest and lowest possible pitches in his voice, slap the keys, employ a “raspy throat sound,” and produce a “wind noise” by blowing the air in a certain way. The flutist must also use the mouth and larynx to make “dirty and multi-tonal quasi-

¹⁵¹ Justyna Kowalska-Lasoń, *...I Touch the Mountains, and They Smoke...*, (Kraków: Polskie Wydawnictwo Muzyczne, 2011), 6.

¹⁵² *Ibid*, 11.

percussive sounds” as quickly as possible, flutter tonguing, and scream strongly into different parts of the flute to distort the sound.¹⁵³

3.3 NETHERLANDS

Dutch composer and flutist Jos Zwaanenburg was born in 1958 in Bovenkarspel. He graduated from the Conservatorium van Amsterdam, where he studied with Wim de Ruiter and Joost Tromp. His compositional output contains mostly chamber and vocal pieces. Known for his research on extended techniques for flute, collaborations with Dirk Kuiper and Eva Kingma led to the development of the open-hole alto flute in 1986-87.^{154 155} A research associate at Oxford Brookes University, he also founded the experimental rock band KXTAHPAPH in 1995.¹⁵⁶

Solo for Prepared Flute, was written in 1984 and published in 1991 by Ascolta Music Publishing.¹⁵⁷ This piece is currently out of print, but is available from the composer upon request. The work comes with playing instructions that explain how to prepare the flute; a key, which explains all symbols and abbreviations used in the score,

¹⁵³ Ibid.

¹⁵⁴ Dirk Kuiper founded a small flute manufacturing company in the 1950’s to meet the demand for new flutes after World War II. Eva Kingma joined Kuiper in 1975, and took over the company in 1981 (Kingma, Eva, “Eva Kingma Flutemaker.”).

¹⁵⁵ Eva Kingma is a flutemaker who specializes in low flutes. She is known for her “key-on-key mechanism” and the “Kingma flute.” The Kingma System® is a standard Boehm mechanism with six extra keys. This key-on-key system is used to produce the six missing quartertones on the French model flute (Kingma, Eva, “Eva Kingma Flutemaker.”).

¹⁵⁶ “Jos Zwaanenburg,” The Living Composers Project, accessed January 4, 2016, <http://www.composers21.com/compdocs/zwaanenj.htm>.

¹⁵⁷ Appendix A.

is also included. The composition is two pages in length, and is about 7 minutes in duration.¹⁵⁸

This composition requires the use of an open-hole Böehm flute with a B foot joint. The two preparations used in this piece include the use of a cork and a piece of cigarette paper. The instructions for the cork placement indicate that the performer is to insert the cork at the foot joint to close off one end of the flute. The result of this preparation is that the low B sounds almost one octave lower than written, and only odd overtones can be produced. The harmonics of the low C natural are also affected, resulting in a change in pitch of the harmonics, causing quartertones to be produced.¹⁵⁹

An airtight seal must be produced by the cork, or the octave lower B2 will not sound. Vaseline can be used if the “cork is not trustworthy.”¹⁶⁰ In addition, the quartertones will be slightly off in pitch, and some of the multiphonics will be impossible to produce. The use of quarter tone pitches are employed at the beginning of the piece, as illustrated in Figure 3.14.

¹⁵⁸ Jos Zwaanenburg, *Solo for Prepared Flute*, (Kriekengarde: Ascolta Music Publishing, 1992).

¹⁵⁹ Ibid.

¹⁶⁰ Jos Zwaanenburg, e-mail message to author, June 2, 2016.

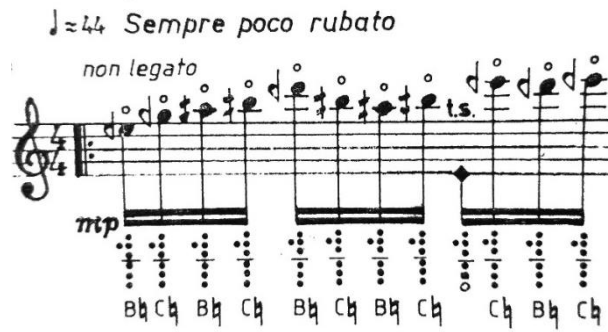


Figure 3.14 Written quarter tones possible through cork preparation.¹⁶¹

The second preparation involves a piece of cigarette paper placed under the A-key of the flute, similar to Gyöngyössi's *Pearls* movement VII. When only the ring of the A-key is closed while playing a tone, the cigarette paper will resonate, and produce a double-reed-like sound. The composer has notated this fingering in the score by placing an X or cross on the A-key in the fingering chart. This symbol means that only the ring of the A-key is to be depressed. Every note that will be affected by the cigarette paper is marked with a squiggle line. Unlike other compositions that use cigarette paper, Zwaanenburg writes some instances where the flutist must slide the fourth finger to the rim of the key. It is because of these slides that the flutist cannot plug the G key. Instead, the performer must retrain the brain so that the fourth finger will remain in position covering the hole completely while the third finger only depresses the rim of the key.¹⁶²

Notes with crosses marked above them represent key slaps, also referenced as key percussion or key clicks. These indications happen almost entirely on the low B

¹⁶¹ Jos Zwaanenburg, *Solo for Prepared Flute*, (Kriekengarde: Ascolta Music Publishing, 1992).

¹⁶² Ibid.

natural note, with the exception of some multiphonic tones. Zwaanenburg also suggests using the ring finger of the left hand to make any key click sounds on the low B natural.¹⁶³

In this piece, some non-traditional flute fingerings are required, and these are notated in the score as a fingering chart beneath the measure. Zwaanenburg describes the whisper tones he desires as “penetrating sinus-like sound, resulting from minimal air pressure from a perfectly relaxed embouchure.”¹⁶⁴ Ghost tones use the air like whisper tones, but the mouth is used as the resonator instead of the flute. The vowel sounds of [o] and [i] will change the pitch, lower and higher respectively, during the glissandi. Jet whistles and tongue stops are also called for in this composition.¹⁶⁵

The composer is very specific about what he wants the performer to do. Dynamic markings are found in at least every other measure, and frequently in every measure. The degrees of dynamic levels are specific as well. The score also indicates when vibrato is to be used, and when it is not to be used. “Senza vibr.” Is usually followed by “ord. vibr.” Dynamics and the use of vibrato or “senza vibr.” Help to bring out the sounds produced because of the cork preparation.¹⁶⁶

Unique requests can also be found in the score. “Pop tongue” is indicated multiple times in the score. Tongue stops are referenced and defined in the “Playing Instructions,” but “pop tongue” is not mentioned. The flutist should differentiate

¹⁶³ Ibid.

¹⁶⁴ Ibid.

¹⁶⁵ Ibid.

¹⁶⁶ Jos Zwaanenburg, *Solo for Prepared Flute*, (Kriekengarde: Ascolta Music Publishing, 1992).

between the two. Tongue pops should be performed like lip pizzicatos with an open lip plate, with bursts of sound taking place inside the oral cavity. Tongue stops produce a sound a major 7th down, whereas the “pop tongue” sounds as the fingering normally would.¹⁶⁷

The preparations of the cork and cigarette paper enhance the composition. The sounds indicated are produced only through the use of these preparations.

Zwaanenburg does not engage the cigarette paper constantly through the piece.

Instead, he activates the cigarette paper at distinct places in the music to add a new level of drama.

Zwaanenburg includes aspects of extended techniques in this piece, including a jet whistle, kazoo technique, and excited vibrato. The kazoo technique is performed by singing with the mouthpiece placed between the lips, as illustrated in Figure 3.18.

Excited vibrato is produced by shaking the flute in a furious manner, as illustrated in Figure 3.15.

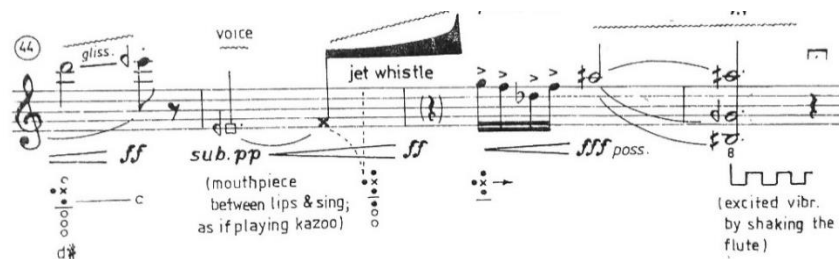


Figure 3.15 Extended techniques in *Solo for Prepared Flute*¹⁶⁸

¹⁶⁷ Jos Zwaanenburg, e-mail message to author, June 2, 2016.

¹⁶⁸ Jos Zwaanenburg, *Solo for Prepared Flute*, (Kriekengarde: Ascolta Music Publishing, 1992).

3.4 SWEDEN

Swedish composer Ansgar Beste was born in 1981 in Malmö. He holds degrees from the Music Academy of Weimar, Germany in church music, composition, piano, music theory and arts management. His awards include 1st prizes at the 55th Composition Prize of the State Capital Stuttgart 2010, and at the 6th International Composition Competition of the Christoph Delz Foundation in Basel 2015, among many others. He has received commissions from the ISCM Austria 2011, and the Ernst von Siemens Music Foundation, as well as others.¹⁶⁹

Beste is the composer who has written the most for prepared instruments. His compositional output is vast, and he writes for many different prepared instruments. Solo works include pieces for prepared pipe organ, prepared Paetzold square bass recorder, prepared violin, and prepared piano. In chamber music, he has written a piece for prepared electric guitar trio, *Transe-Formation*, 2013, as well as a piece for prepared wind quintet mouthpieces, *Mascarade Obscure*, 2013.¹⁷⁰ His large ensemble/orchestra works includes pieces for prepared large ensemble and prepared string orchestra. Beste's music has been performed by many ensembles, including the Arditti String Quartet, the Swedish Wind Ensemble, and Jeunesse Chamber Choir Vienna.¹⁷¹

¹⁶⁹ "Bio," Ansgar Beste, Accessed January 24, 2016, <http://www.ansgarbeste.com/about/bio/>.

¹⁷⁰ "...the musicians only play on the mouthpieces of their instruments using different preparation devices to achieve a rich timbral palette." (Ansgar Beste, <http://www.ansgarbeste.com/musical-compositions/chamber-music/mascarade-obscure/>)

¹⁷¹ Ibid.

Incontro Concertante, commissioned by the Badisches Staatstheater (Insel) in Karlsruhe, won 2nd prize at the Hanns Eisler Prize for performance in Berlin in 2012. To prepare the flute for Beste's composition, the following materials are needed: aluminum foil (Length(xWidth)xHeight = 22 cm (x20cm) x 0,013 mm, a vinyl tube/garden hose (LengthxDiameter 30 x 1,8 cm), and a large conical jar (LxD approximately 20 x 11 cm), filled with water (approximately 5-6 cm of water). The aluminum foil should be wrapped around the upper finger holes, and attached with a piece of adhesive tape. The lower three keys of the middle joint should remain free. One end of the vinyl tube/garden hose is inserted into the foot joint, far enough to ensure that it will not fall out, as illustrated in Figure 3.16.¹⁷²



Figure 3.16 The use of a vinyl tube in the foot joint.¹⁷³

The tube does not remain inside for the whole piece. Instead, it is removed during bar 166. When indicated by the score, the other end of the vinyl tube/garden hose should be placed into the large conical jar without touching it. Beste suggests placing the jar on a music stand or on a small table. Larger jars will ensure less water

¹⁷² Ansgar Beste, *Incontro Concertante*, (Babel Scores, 2010).

¹⁷³ Ibid.

splashing out of the container. To avoid the problem of water bubbling caused by breathing air, very little water is recommended.^{174 175}

3.5 GREECE

Untitled for solo prepared flute and sound devices (2009) is written by Marianthi Papalexandri-Alexandri. This composition is worthy of mention, but is outside the scope of this document because the score was unavailable for study.

NORTH AMERICA

3.6 MEXICO

Mexican composers Victor Adán, Mauricio Rodriguez and Graciela Agudelo have written pieces for the prepared flute. Adán's *Multiplexor III* (2006) requires the use of rubber bands in the composition. In *Unnamed* (2007), Rodriguez uses only the head joint of the flute.¹⁷⁶ Agudelo's *Meditaciones sobre Abya Yala* uses cigarette paper under the A key of the flute.¹⁷⁷ These compositions are worthy of mention, but are outside the scope of this document because the scores were unavailable for study.

3.7 UNITED STATES OF AMERICA

A few American composers have written for the prepared flute. John Fonville's *Music for Sarah* (1993), is a multi-movement work that uses a preparation of the flute in many of the movements. These preparations include the use of cork, only the head joint

¹⁷⁴ Ibid.

¹⁷⁵ Appendix A.

¹⁷⁶ Appendix A.

¹⁷⁷ Appendix A.

and body of the flute, and only the body and foot joint of the flute.¹⁷⁸ American composer Isaac Brockshus's multi-movement work, *Greytudes* (2016) uses beads, erasers, earplugs, darts, and buzzers to prepare the flute. This composition is discussed in greater detail in Chapter 4.

ASIA

3.8 SOUTH KOREA

Known internationally as an innovative komungo (Korean fourth century fretted board zither) virtuoso, Jin Hi Kim brought the instrument into the 21st century by co-designing the world's only electric komungo with interactive MAX/MSP program.¹⁷⁹ She has performed as komungo soloist on her own compositions at Carnegie Hall, Lincoln Center, Smithsonian Freer Gallery of Art, and the Metropolitan Museum of Art, to name a few. A Guggenheim Fellow in Music Composition, she has been commissioned by the American Composers Orchestra, Kronos Quartet, and Chamber Music Society for the Lincoln Center, among many others. Kim's many awards include the 2014 Asian Cultural Council Mandarin Oriental Fellow, the 2013 McKnight Visiting Composer with the American Composers Forum, and the Music Alive Composer in Residency with New Haven Symphony.¹⁸⁰

Some of her recent works include pieces in response to the Korean War and Vietnam War: *One Sky*, for orchestra and two Korean soloists, dedicated to the

¹⁷⁸ Appendix A.

¹⁷⁹ A "zither" is a class of stringed instruments, where the strings are the same length as the soundboard.

¹⁸⁰ "Jin Hi Kim," Accessed January 22, 2016, <http://www.jinhikim.com/>.

reunification of Korea, and *Child of War*, a choral piece dedicated to Kim Phuc, “the girl in the picture”¹⁸¹ during the Vietnam War. Kim’s aesthetic of ‘living tones’ aide in the development of her compositions. ‘Living tones’ is a traditional Korean belief where each tone in music is perceived as alive, or the ‘life’ of the tone. She has given many lectures on this philosophy, which finds its roots in Korean Shamanism. In exploring these ideas, Kim’s work challenges and expands the instrumental vocabulary of Western music.¹⁸²

Tchong, a duet for Korean membrane bamboo flutes (court and folk) and Western flutes (soprano & bass), was composed in 1988.¹⁸³ It was written for Hong Jong-Jin and Robert Dick. The flute is to be prepared with rice paper across the finger holes to mimic the sound of a transverse bamboo flute. The bamboo flute, known as a *dagum*, produces a timbre called *tchong* that is caused by a membrane on the flute. The score is not specific as to how to attach the rice paper, or what specific keys it should be placed under.¹⁸⁴

The work has numerous sections, and the score incorporates many symbolic notations in each movement. The first movement begins with the flutist and court daegum player breathing in specific ways, such as breath bending, breath staccato, breath slide up, and breath wave, as illustrated in Figure 3.17. The prepared flute is used

¹⁸¹ Kim Phuc was photographed on June 8, 1972 in South Vietnam. The picture depicts nine-year-old Phuc running from her blazing village. She was severely burned by napalm. This photograph was spread around the world, and changed public opinion about the Vietnam War (Chong, *The Girl in the Picture*.).

¹⁸² “Jin Hi Kim,” Accessed January 22, 2016, <http://www.jinhikim.com/>.

¹⁸³ Appendix A.

¹⁸⁴ Jin Hi Kim, *Tchong: for Korean membrane bamboo flutes (court & folk) and Western flutes (soprano & bass)*, (Black Rock, CT: Living Tones, 1995).

in this section to emphasize the ‘breath buzz.’ Pitches are not notated in this section; rather, the flutist improvises pitches based on overarching directions that are given in the score. Typical rhythmic values are not normally used. Instead, Kim writes approximate durations in seconds above many of the note groupings or actions. Other movements employ the bass flute, where the flutist must produce many multiphonics and timbral trills.¹⁸⁵ The prepared flute is used in this piece both as a representation of the transverse bamboo flute, and as a percussive instrument.



Figure 3.17 *Tchong* duet between prepared flute and court daegum¹⁸⁶

3.9 JAPAN

Composer Ryojun Sasaki was born in 1960 and attended Yamagata University. His numerous awards and prizes include the Hirosaki Cherry-garden Composition Competition 2006, the Nippon no Ongakuten Award finalist 2007, and the Tokyo Katsushika Composition Competition 2013. His works include pieces for horn, flute, and wind ensemble.¹⁸⁷

Sasaki’s composition, *Danpen rensa II*, also known as *Imagination Linkage II*, was composed in 2007, and is in three movements. The first page of the score discusses the

¹⁸⁵ Ibid.

¹⁸⁶ Ibid, 3.

¹⁸⁷ “Works by Japanese Composers 2013-2014.” Suntory, accessed January 29, 2016, <http://www.suntory.co.jp/sfa/music/publication/pdf/list2013.pdf>.

notation and how to prepare the flute. The purpose behind the preparation of the flute is to imitate the Chinese membrane flute. This is achieved by using a very thin plastic or vinyl sheet, such as a cheap plastic bag, scotch tape, and scissors. The flute must be an open-hole flute. The plastic sheet is cut about twenty millimeters by 30-35 millimeters. The sheet is cut in an arc shape at the top, to avoid coming into contact with screws and other workings of the flute. The plastic sheet is taped to the A-key, or left middle finger of the flute.¹⁸⁸ This preparation is like the cigarette paper used in Gyöngyössi's *Pearls* movement VII and Zwaanenburg's *Solo for Prepared Flute*.

Two flutes are required to perform this piece: an unprepared flute and a prepared flute, as well as a prepared foot pedal chime. The notation section of the first page provides the symbols used in the piece and what they mean to the composer. Sasaki is very specific about how to perform each symbol, and he has modified usual symbols to fit his needs. For example, he uses the standard notation for *niente* attacks, crescendos with hollow circles on the beginning of this symbol, and a hollow circle on the end of the decrescendos. This is to inform the performer to crescendo from nothing, with no attack to be heard, and to diminuendo to nothing, with the end of the tone unrecognizable.¹⁸⁹

Similar to the *Solo for Prepared Flute* by Jos Zwaanenburg, *Imagination Linkage II* has very specific markings about vibrato, and the amount of focus or breathiness the

¹⁸⁸ Ryojun Sasaki, *Imagination Linkage II: For Flute Solo*, (Tokyo: Japan Federation of Composers, 2007), 3.

¹⁸⁹ Ibid, 3, 5-6.

sound has. The vibrato directions are indicated by NV, no vibrato, and vib. The amount of vibrato affects the buzzing of the plastic bag.¹⁹⁰

Movement II is the movement where the prepared flute is needed. The notation is normal, with bar lines and pitches notated. There are boxes around groups of notes, with a letter on the top left corner of the box, shown in Figure 3.18. These letters are either “B” or “P,” and have specific directions for each letter, found in the beginning of the score. Per the beginning of the piece, Sasaki indicates that “B” means that the left middle finger is slid outward from the key in such a way that only the rim is depressed. This should sound like a Chinese membrane flute. Conversely, “P” means that the left middle finger is slid outward again, but the rim of the key is depressed lighter than with “B.” The tension of the membrane will be lighter, and will vibrate slower. Hollow circles above certain notes indicate “normal” flute sound.¹⁹¹



Figure 3.18 Specific depression of the A key.¹⁹²

As in the first movement, an extra stave is employed starting in measure 17 where a ‘u’ is written; the notes indicated on this stave are to be sung in falsetto or by a

¹⁹⁰ Ibid.

¹⁹¹ Ryojun Sasaki, *Imagination Linkage II: For Flute Solo*, (Tokyo: Japan Federation of Composers, 2007), 3, 5-6.

¹⁹² Ibid, 5.

female singer. Luckily for the performer, Sasaki indicates at the beginning of the composition that the voice need not be in tune. Voiceless consonants are also located on this staff.¹⁹³ The addition of the voice strengthens the effect of the plastic bag.

In conclusion, composers from Europe, Asia, and North America are writing for the prepared flute. Many composers have been influenced by each other to expand the sound realm of the flute, and were greatly inspired by their knowledge of acoustics. The prepared flute is used to transform the instrument into a percussive instrument, as well as to imitate instruments from other cultures, and as a voice to communicate political beliefs or gender issues. Employing extended techniques while the flute is prepared create other realms of sound possibilities.

¹⁹³ Ibid, 3, 5-6.

Table 3.1: Items used for preparation, compositions, date, and country of origin.

Hungary	1. Eötvös, <i>Windsequenzen</i> 2. Matuz, “Studium 1” from <i>6 Studii per flauto solo</i> 3. Matuz, “Studium 2” from <i>6 Studii per flauto solo</i> 4. Matuz, “Studium 3” from <i>6 Studii per flauto solo</i> 5. Matuz, “Studium 4” from <i>6 Studii per flauto solo</i> 6. Matuz, “Studium 5” from <i>6 Studii per flauto solo</i> 7. Matuz, “Studium 6” from <i>6 Studii per flauto solo</i> 8. Szigeti, <i>That’s for You</i> for 3 flutes 9. Gyöngyössi, “III” from <i>Pearls</i> 10. Gyöngyössi, “VI” from <i>Pearls</i> 11. Gyöngyössi, “VII” from <i>Pearls</i>	1. 1975/2002 2. 1974/1984 3. 1990 4. 1989 5. 1990 6. 1990 7. 1988 8. 1988 9. 2011 10. 2011 11. 2011	1. Cork 2. Cork 3. Only the head joint and foot joint 4. Only the body and foot joint 5. Balloon 6. Cork, only the body and foot joint 7. Cigarette paper, Saxophone mouthpiece 8. Cigarette paper, Clarinet mouthpiece 9. Cork, Only the head joint 10. Cork 11. Cigarette paper
Poland	1. Bloch, <i>Oratorium für Orgel, Streicher, und Schlagzeug</i> 2. Kowalska-Lasoń, <i>I Touch the Mountains and They Smoke</i>	1. 1982 2. 2011	1. Only the head joint 2. Water, only the head joint, only the body, only the head joint and body
Netherlands	1. Zwaanenburg, <i>Solo for Prepared Flute</i>	1. 1984	1. Cigarette paper, Cork
Sweden	1. Beste, <i>Incontro Concertante</i>	1. 2010-2012	1. Aluminum foil, Water – with vinyl tube
South Korea	1. Kim, <i>Tchong</i>	1. 1988	1. Rice Paper
Japan	1. Sasaki, <i>Danpen Rensa II</i>	1. 2007	1. Plastic bag
United States	1. Fonville, <i>Music for Sarah</i> 2. Brockshus, <i>Greytudes “I”</i> 3. Brockshus, <i>Greytudes “II”</i> 4. Brockshus, <i>Greytudes, “III”</i>	1. 1993 2. 2016 3. 2016 4. 2016	1. Cork, only the head joint and body, only the body and foot joint 2. Beads, Earplugs, Erasers, Aluminum foil 3. Darts 4. Buzzers, only the body and foot joint
Mexico	1. Agudelo, <i>Meditaciones sobre Abya Yala</i> 2. Adán, <i>Multiplexor III</i> 3. Rodriguez, <i>Unnamed</i>	1. 1995 2. 2006 3. 2007	1. Cigarette paper 2. Rubber bands 3. Only the head joint
Germany	1. Kubisch, <i>Emergency Solos</i>	1. 1973	Thimbles, Gas mask, boxing gloves, condom
Greece	1. Papalexandri-Alexandri, <i>Untitled I for solo prepared flute and sound devices</i>	1. 2009	1. N/A

CHAPTER 4

THE PREPARED FLUTE OF TODAY: *GREYTUDES* BY ISAAC BROCKSHUS

4.1 BACKGROUND

Flutists commission countless new pieces each year because of their interest in the instrument and their desire to expand the repertoire. With that in mind, I approached my colleague from the University of South Carolina, composer Isaac Brockshus, about the possibility of writing a piece for prepared flute and prepared piano. Through my research, I realized that there was very little music for prepared instruments in the chamber music setting, and none for the duo of prepared flute and prepared piano. I also wanted to prepare the flute in new ways. I set out to change this by commissioning Brockshus. He quickly agreed, and we embarked on this venture together.

4.2 ISAAC BROCKSHUS

American composer and pianist Isaac Brockshus was born in 1988. His love of composing began with correcting his assigned piano pieces from his lessons. His childhood obsession led him to earn degrees from the University of Northern Iowa and the University of South Carolina. While at USC, he helped to found a new music series, Collaborations in Contemporary Art, or C.I.C.A..

He also assisted with the Southern Exposure New Music Series.^{194 195}

Many groups, such as Boston Brass and Decoda, have premiered his works. He has been commissioned by the USC School of Music, the UNI Men's Glee Club, and the USC bassoon studio. Brockshus' many accolades include the John and Lucrecia Herr Award for Composition and a Gold Addy for his commercial work. He is also one of the youngest inductees into the SAI Composers Bureau.¹⁹⁶

The Composer-in-Residence at the Exploring Chamber Music festival at the University of Northern Iowa, Brockshus acts as a group coach and composer of new pedagogical chamber works. He believes that chamber music can teach children to be independent-minded musicians and disciplined individuals.¹⁹⁷

4.3 THE COMPOSITION

Greytudes, for prepared flute and prepared piano, was composed in 2016, and premiered March 4, 2016 at the University of South Carolina by the author, Stacey Russell, flute, and John Holloway, piano.¹⁹⁸ The work is a series of three etudes, and each focuses on different ways to prepare the flute and the piano. According to the composer, "each *Greytude* is designed to give performers a semi-structured

¹⁹⁴ The Southern Exposure New Music Series, based in Columbia, South Carolina, "is devoted to exploring the rich variety of contemporary classical and world music written in the past 30 years, as well as the masterworks of the 20th century" (http://www.sc.edu/study/colleges_schools/music/concerts_and_events/southern_exposure/).

¹⁹⁵ "Isaac Brockshus: Composer," accessed February 5, 2016, <http://www.isaacbrockshus.com/>.

¹⁹⁶ Ibid.

¹⁹⁷ Ibid.

¹⁹⁸ John Holloway is an innovative pianist and teacher, Managing Director at the Four Seasons Chamber Music Festival at East Carolina University, and the Associate Director of the Southeastern Piano Festival at the University of South Carolina.

environment in which to explore the ‘grey areas’ created by preparing the instruments.”

The majority of the preparations for both instruments in *Greytudes* are unstable and unpredictable. The resulting sounds are unknowable until the performance is underway.

“Each piece is cheekily titled *Greytude*—a study of techniques that arise within the “grey area” between the instrument’s prepared and non-prepared states.”¹⁹⁹

Brockshus’ inspiration for these pieces began with the brainstorming of new ways to prepare the flute.

“I began to discover that the same method of preparation would achieve different effects depending on the player, the instrument, and even the acoustic environment. In fact, should all of those factors be held equal, the results would still change from day to day. I was forced to admit that neither I nor the performer could claim total control over the sound. (A composer in crisis!) I chose to structure the pieces in ways that allowed the performer to explore the unique behaviors of their instrument in the moment of performance. The scores were shaped with the intention to invite the performers to explore the sounds alongside the composer.”²⁰⁰

Brockshus and I spent many months testing different combinations of materials and ideas in order to develop this piece. The experiments were videotaped and well-documented, noting what materials were used, where, and the effects of the preparations on the flute. These included alterations to the overtone series, single pitches, air speed or direction, as well as many others.

Greytude I, “Restless,” requires that the flute be prepared with everyday objects: beads, erasers, earplugs and aluminum foil. The performer must first cut a piece of

¹⁹⁹ Isaac Brockshus, e-mail message to author, March 6, 2016.

²⁰⁰ Isaac Brockshus, e-mail message to author, March 7, 2016.

aluminum foil and fasten it to the end of the foot joint with a rubber band. The beads, earplugs and erasers are then dropped down through the top and into the foot joint. Next, the flute is assembled normally. Aluminum foil is used to ensure that the moving objects inside the flute stay inside the instrument.

This preparation affects the sound produced by the flute in many ways. First, the moving objects act as a percussive device, and the flute is transformed into a rain stick. The slamming of the beads onto the aluminum foil produces a percussive sound as well. Secondly, the movement of objects disrupts the air stream inside the flute, and pitches are altered depending on the location of the objects and the position of the flute at a specific time. Brockshus uses the movement of objects as a percussive effect in this movement. He also uses the erasers and earplugs to change the overtone series of the flute.²⁰¹

The flute is constructed in such a way that the “point where the embouchure riser meets the main bore of the flute and cork” at the top of the head joint contains a small volume of air.²⁰² This pocket of air “compensates for the frequency dependent end effects at the other end of the flute” to maintain equal intonation between registers.²⁰³ When the beads are located in the head joint of the flute, the beads disrupt this pocket of air, and prohibit the pocket from compensating for the frequency. The disruption of the air pocket also allows the flutist to play pitches higher into the fourth octave.

²⁰¹ Isaac Brockshus, *Greytudes*, (2016).

²⁰² “Flute Acoustics: An Introduction,” The University of New South Wales School of Physics, accessed March 6, 2016, <https://newt.phys.unsw.edu.au/jw/fluteacoustics.html>.

²⁰³ Ibid.

Therefore, the location of the beads from the top of the head joint to the embouchure hole causes the pitches to jump at least an octave.²⁰⁴

The pitch seems to waver while the beads are in motion. When the flutist sustains a pitch and changes the angle of the flute at the same time, the pitch is interrupted by the moving beads, causing a flattening of the pitch, and a warble sound.

The music for the flute is written in two staves. The top staff indicates the angle of the flute in three lines: 45 degrees, 0 degrees, and negative 45 degrees, as illustrated in Figure 4.1. The second staff indicates specific pitches to play.²⁰⁵



Figure 4.1 *Greytudes I*, demonstration of flute angle.²⁰⁶

The unpredictability of the sounds produced in this movement is exciting for the composer, performer and the audience member. Each performance will yield a different and equally legitimate result.

This piece is designed to be played on a Steinway Model D piano. The use of a different model of piano would change the preparations completely. The structural

²⁰⁴ Ibid.

²⁰⁵ Isaac Brockshus, *Greytudes*, (2016).

²⁰⁶ Ibid.

supports of the pianos of different makes and models do not allow the earplugs to be placed in a group together. Similarly, the sink stoppers will not fit on the designated pitches on other piano models. Steinway Ds have two strings for all the pitches that require earplugs. Other models contain three strings on some of those pitches. The composer can alter the piece if the performer is using a different model of piano, or the performers can experiment with different placements of the objects.

To prepare the piano in *Greytude I*, foam earplugs and rubber erasers are required. The composer recommends “Hearos™ Advanced Protection Series” earplugs, and small “pencil topper” erasers. The rounded end of the earplugs are molded into a bell-like shape. The performer must find places that cause drastic changes in the sound when playing the key and touching the plug at the same time. Pitches with three strings require that the earplugs be placed between strings two and three. With the plug inserted, the harmonics will only be heard when the player touches the plug. This process will continue until all eleven earplugs are placed as indicated in the score. Placement slows the vibrations. The resulting sounds of the earplugs are like metallic, pure tone, whistle, and metallic pure tones depending on where they are placed inside the piano.^{207 208}

In order to keep track of the earplugs, the pianist must mark the individual earplugs with numbers. Otherwise, the pianist must remember which harmonic was

²⁰⁷ A pure tone is a tone with a single frequency, also known as a sinus tone (Truax, Barry, “Sine Tone.”).

²⁰⁸ Isaac Brockshus, *Greytudes*, (2016).

selected for each earplug. Brockshus suggests pressing the keys with the left hand, and the plugs with the right hand.

Each of the ten rubber erasers should be wedged between the 2nd and 3rd strings of the same pitch. The first eraser should be placed before the dampers. The goal is to create a sound that mimics a detuned drum. The next eraser is placed between strings two and three somewhere beyond the dampers. The exact locations of the erasers beyond the dampers are at the discretion of the performer. The goal of the placement of erasers beyond the dampers is to disguise the true pitches of the strings, and create an interesting partial.²⁰⁹ The erasers shift the width of the three strings. This results in the hammer hitting a different set of strings. It also limits or absorbs the vibrations, and can change the pitch completely. The pitches sound very wooden with very small pitch base, and much more percussive in nature. As well as slightly detuning the pitch, the erasers also allow the performer and listener to hear a different series of overtones.

A symbol that looks like a vertical earplug is used to represent that object. A number is placed on top of that symbol to denote the specific earplug to use. To “play” the earplug, the pianist taps the earplug like a drum. The pianist touches the number of the earplug needed to achieve the overtone series discussed earlier. In movement two, the earplug is struck, as opposed to touched. A notehead with a slash means to tap the object. A traditional notehead indicates that the key should be played instead.²¹⁰ A tapped earplug creates a percussive, detuned version of the actual pitch. Pressing the

²⁰⁹ Isaac Brockshus, *Greytudes*, (2016).

²¹⁰ Ibid.

earplug to dampen the sound played traditionally on the piano produces the overtone series.

Brockshus provides a cautionary reminder in the score in that the pianist must “always lift the dampers when inserting or removing an object between the strings.” This is to prevent any damage from occurring to the felt of the dampers. The player must also remember to never let any metal touch the strings.²¹¹

When the piano is played beyond a *mp* or *mf*, the erasers can dislodge from the strings. Although done on purpose in *Greytude III*, the erasers should stay in place for the first two *Greytudes*. If an eraser does move during *Greytude I* or *II*, the pianist must replace the eraser before *Greytude III*. If the performer has difficulty keeping the erasers in place, the composer suggests cutting grooves in the sides of the erasers with the use of scissors or a knife.²¹²

Greytude I is more freely notated and aleatoric. The pianist plays a repetitive rhythm until the flute pauses. After the brief pause, the flutist moves on to the next section at a similar pace, signaling the pianist to finish the previous section, and move on to the next section. In this movement, as well as all movements, the flutist should perform from the score.

Greytude II, “Distant,” uses darts with suction cups on one end to prepare the flute. Two darts are needed for this movement, with suction cups that have a slightly

²¹¹ Isaac Brockshus, *Greytudes*, (2016).

²¹² Ibid.

larger diameter than the bore of the flute. The first dart should be placed inside the flute, through the foot joint, with the rod pointed in, toward the mouthpiece. The suction cup is placed just before the last key. The dart will rest along the side of the body of the flute. The second dart is inserted just inside the end of the foot joint, suction cup first, with the rod pointed out of the flute.²¹³

The darts and their placement affect the flute in the following ways: the pitches A4, G-sharp 4, G4, F-sharp 4, and F4 will sound with some beating. The two pitches are slightly apart and create an interference tone. The lowest keys create airy, pitchless sounds. The second dart is mostly for visual effect, and has no effect on the flute's sound.

The placement of the darts is very tricky. If not placed in the exact position, the interference tone will not be present, or will be located on a different note other than G4. As stated in Chapter 2, it is difficult to insert the darts into the flute because of the suction cups. The performer should be careful when placing the second dart to insert from the top of the foot joint down, to ensure that the edges of the suction cup bend backward towards the body of the flute.

As Brockshus states in the score, the “exact behavior of a flute with such preparations is unpredictable and will vary with each instrument and performance. Therefore, the purpose of this ‘greytude’ is to explore the unique tendencies of the prepared flute at the time of the performance.” Each dart affects the sound differently,

²¹³ Isaac Brockshus, *Greytudes*, (2016).

perhaps based partly on whether the dart had been used previously or not. The temperature of the room also affects the objects. For this reason, Brockshus wrote an improvised cadenza toward the end of the piece that gives the flutist an opportunity to further explore timbral possibilities. Lastly, he instructs the performer to “embrace the volatility of the prepared flute; don’t try to replicate any previous performances, but instead explore the range of possibilities available in the moment.”²¹⁴

In *Greytude II*, the preparations for the piano are the same as the first movement, with the addition of sink stoppers.²¹⁵ The composer recommends “Trueliving™ Sink Strainers” with rubber bottoms. Each of the four sink stoppers are placed on multiple strings so that many pitches sound when the stopper is hit with the finger. In other words, a sink stopper located on top of one string of A, three strings of B, and one string of C will provide three different pitch possibilities, depending on the location of the tap. The resulting sound is reminiscent of a gamelan.^{216 217}

The sink stoppers can be added before *Greytude I* as well, although they are not utilized until the second movement. This is beneficial for the performers, because the preparation of the piano is a relatively easy setup.

Greytude II has six symbols that denote different actions the pianist must do, with a symbol in the score used to represent different materials. Numbers are located

²¹⁴ Isaac Brockshus, *Greytudes*, (2016).

²¹⁵ Appendix

²¹⁶ A gamelan is a type of Indonesian orchestra that generally includes bronze gongs, gong-chimes, metallophones, drums, and chordophones (Kartomi, Margaret J. and Mendonca, Maria, “Gamelan.”).

²¹⁷ Isaac Brockshus, *Greytudes*, (2016).

inside the stopper symbol corresponding to one of four stoppers placed in the piano. This symbol instructs the performer to tap the indicated stopper with a finger on the plastic center of the stopper. A stopper symbol with a wavy line protruding from the symbol indicates that the performer must “trill” the stopper by rocking back and forth on the strings rapidly, as illustrated in Figure 4.2. A stopper symbol with a more relaxed wavy line from the symbol indicates that the performer is to “trill” the stopper by rolling on the strings rapidly in a circular fashion.²¹⁸

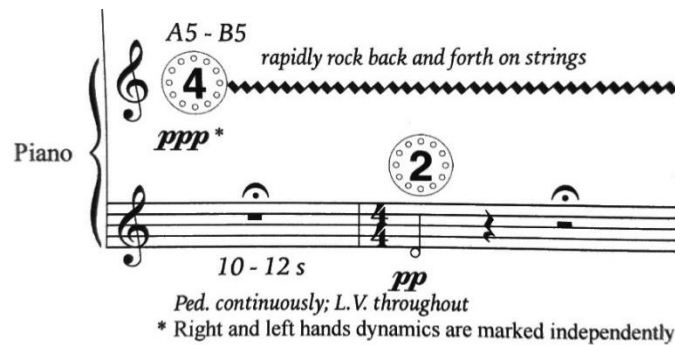


Figure 4.2 *Greytudes II* “trill” indication for stoppers.²¹⁹

Greytude II begins with piano alone. The sink stopper symbol is found at the beginning of the score, with a wavy line protruding from the symbol. The number four is located inside the symbol indicating the use of sink stopper number four, which is located between A5 to B5. The performer is to “trill” the stopper in a back and forth motion in the right hand, and play or strike other sink stoppers in the left hand. Dynamics for the right hand and left hand are marked independent of each other. An

²¹⁸ Isaac Brockshus, *Greytudes*, (2016).

²¹⁹ Ibid.

earplug is not played until measure 6. Traditional noteheads are finally used in measure 23.²²⁰

The flute does not begin playing until measure 8. Beginning pianissimo, the flute is angled outward and detuned a half step. This indication is located above the staff, with a symbol that looks like the letter “u” leaning to the right, meaning that the flute is angled outward, and should retain this position until the next indication, illustrated in Figure 4.3. Measure 16 introduces a new symbol that looks like ink splotches. This is found above the staff, and represents the air flow over time. The introduction of harmonics begins in measure 20, and measure 22 brings a change in angle of the flute, from an outward angle to the flute angled normally. This quickly changes in the next bar, alternating from angling outward to normal.²²¹



Figure 4.3 *Greytudes II*, angle of the flute.²²²

Measure 26 has the “u” leaning to the left, with the indication that the mouthpiece should be rolled outward slowly. The flutist should retain the current angle if an interference tone is discovered. Two possible options are laid out in measure 27,

²²⁰ Isaac Brockshus, *Greytudes*, (2016).

²²¹ Ibid.

²²² Ibid.

depending on what is currently taking place in the performance. The flutist can either retain the interference tone and stretch the “beats,” or keep searching *ad lib* for an interference tone. Again, because the exact behavior varies from each performance, Brockshus provides opportunities for the flutist to discover where those unique sounds lie in the current performance, and dwell on them for a little while.²²³

The next few measures are centered on the breaking point of the sound: G4. Measures 30-32 are variations on trills, from G4 (trilling either half step or whole step above), F-sharp 4, and G-sharp 4 (trilling either half step or whole step above), culminating in A-natural 4 in a decrescendo while moving the flute back to the normal angle. The flute rests for two bars, and gears up for its cadenza, located in measure 35. Brockshus writes that the cadenza should be no more than 30 seconds. The score indicates that the flutist should cue the pianist when the “cadenza begins to cool off.” The movement ends with the flutist playing softer and softer, while rolling the flute to the interference tone. At the same time, the pianist is “trilling” sink stopper number one to *niente*.²²⁴

In a similar fashion to the comments written for the flute, Brockshus states that the pianist should “embrace the volatility of the prepared piano.” Each performance will be different due to the unpredictable tendencies with each piano, and the placement of objects inside the piano.²²⁵

²²³ Ibid.

²²⁴ Ibid.

²²⁵ Ibid.

Greytude III, “Brash,” requires that the flute be prepared with buzzers. The buzzers are found in children’s groan sticks. (Specific directions for obtaining these items are found in Chapter 2.) Written for the flute body and foot joint, one buzzer is inserted into the top of the body of the flute. The body of the flute decreases in width after the opening, so the buzzer will stay in place on its own. The body and foot joint of the flute is positioned vertically in front of the body, and the flutist is to blow into the body of the flute.²²⁶

The buzzer consists of thick plastic surrounding a plastic reed on both ends of the buzzer. Blowing air into the buzzer causes the reed to vibrate. The frequency is controlled by air speed and direction. Since the second buzzer is located inside the end of the foot joint, the buzzer is only activated when the flutist fingers a low B3, closing all the keys.

Using one buzzer located in the body of the flute, the flutist is asked to create four different sounds and personas. The “buzz saw” is achieved by blowing a slow, low air stream. This will produce a “buzzy” drone sound. Fingering notes from G4 up the scale will only change the resonance or timbre of the drone, as illustrated in Figure 4.4. Fingering an F-sharp4 and below will change the pitch slightly.²²⁷

²²⁶ Ibid.

²²⁷ Ibid.

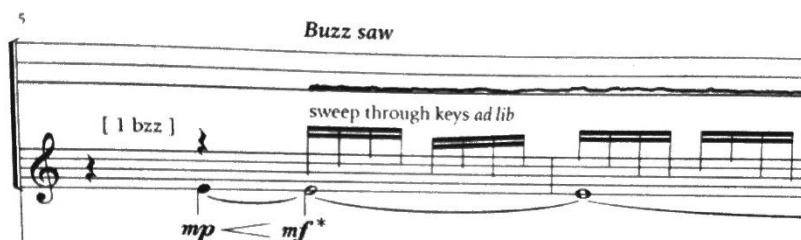


Figure 4.4 *Greytude III* the Buzz Saw.²²⁸

The “incinerator” requires the flutist to flutter tongue to “scramble” the sound, as illustrated in Figure 4.5. The performer will use varied air directions and pressures to achieve different noises. The flutist may also adjust the angle of the instrument to produce alternative sounds. Usually, the “incinerator” is marked with sweeping gestural lines, without specifically notated pitches.²²⁹

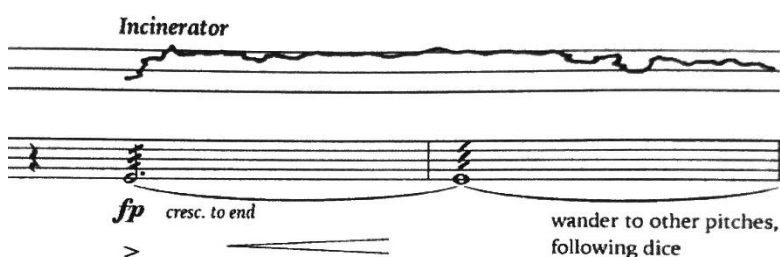


Figure 4.5 *Greytudes III* the Incinerator, adding flutter tonguing.²³⁰

The “throttle” is the sound produced with intense streams of air, and in short bursts. Akin to a tongue ram on the mouthpiece, the flutist can stop the air with the tongue on the body of the flute, or use the lips to close off the air. Short bursts of sound

²²⁸ Ibid.

²²⁹ Ibid.

²³⁰ Ibid.

are produced by stopping the air, or by releasing the air from a stopped position. These bursts sound like laser gun shots.²³¹

A high air stream is used to achieve the “unhinged” sound. The highest air stream possible will produce a high pitch with a very thin buzz, and will maintain the same pitch until the air stream drops. This noise sounds like a very high partial achieved by a trumpet player. The dipping of the air stream from the highest possible to the middle results in a sound Brockshus describes as a “rusty hinge on a massive door.”²³² The flutist may also lower the angle of the air stream to the “buzz saw” persona, and freely alternate between the registers.

Around the middle point in the movement, the flutist inserts a buzzer into the foot joint. The buzzer will not fit completely inside the foot joint. Instead, about only half of the buzzer will fit inside, and will stay in place on its own. The addition of the extra buzzer provides two more sound possibilities, the “generator” and the “beast.”²³³

The “generator” is a static filled sound, and is very bright. Akin to the sound of simulated electronic water, the speed of the static or water is controlled by the speed of the fingers. A multiphonic can only be achieved by fingering the low B3, activating the second buzzer. The flutist can vary the sound by changing the air direction, air speed, and notes fingered through the entire range of the flute.²³⁴

²³¹ Isaac Brockshus, *Greytudes*, (2016).

²³² Ibid.

²³³ Ibid.

²³⁴ Ibid.

The final sound employed in *Greytude III* is “the beast,” or “gorilla,” as illustrated in Figure 4.6. The flutist must use flutter tonguing to “scramble” or distort the pitch content. Like the “incinerator,” both use flutter tonguing, but the second buzzer adds a new palette of possibilities. The most interesting noise produced is when the flutist fingers a low B. The low B3 produces a growl that can only be maintained with a large amount of air.²³⁵

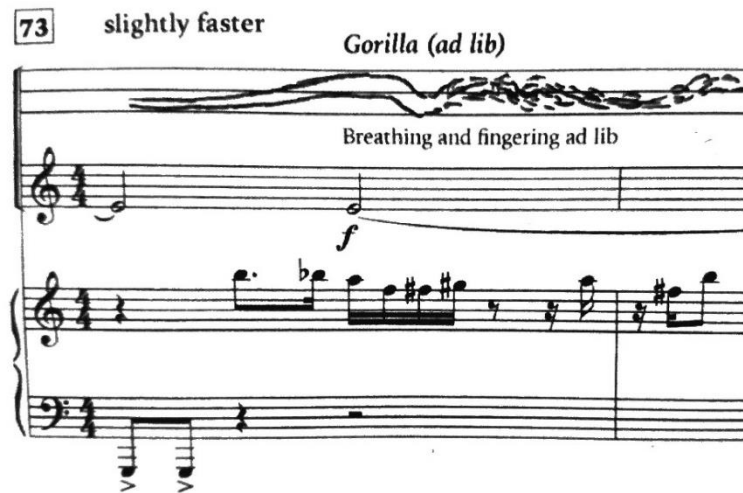


Figure 4.6 *Greytudes III* the Gorilla, and the addition of buzzer #2.²³⁶

The preparations for the piano in “Brash” are the same as the first two movements, with the addition of dice and a leather belt are required. The dice should be wooden or plastic, and must be larger than regulation size to avoid falling between the strings. There is no brand or size recommendations for the leather belt. The leather

²³⁵ Ibid.

²³⁶ Ibid.

belt should be positioned between the dampers and the dice, and act as a protective barrier.²³⁷

The dice do not change the overtone series or frequency of the pitches of their locations. They do, however, make rattling sounds as they move. The pianist follows the movement of the dice by playing the key corresponding to the current location of the dice. Specific rhythms are notated in this section, however.

The flute part is written as two staves. The top staff denotes the air direction that the flutist should use, and the second staff contains written pitches and/or contour and dynamics. The flute begins with the indicated “buzz saw,” and contour is notated. Measure 9 instructs the flutist to “slap any trill key,” which results in a variation of pitch, unlike the previous measures which had timbral changes.²³⁸

4.4 CHALLENGES

Non-traditional notation provides a challenge for both performers. Pianists are used to seeing pitches, and hearing in their head what the pitches should sound like, as well as using that information to help them collaborate with the flute player. Instead, the pianist cannot look at the score and have any expectations as to what the flutist will play. Because Brockshus uses improvisation and pitches are not precisely notated, each performance is different from another. This also means that the pitches produced could be different than those notated in the score. For example, the location of the beads in

²³⁷ Ibid.

²³⁸ Isaac Brockshus, *Greytudes*, (2016).

the flute could result in different pitches than what is in the score. Instead, the performers must listen for sections, or changing sections, as well as relative pitch. The relative pitch, or rise and fall, of the line will provide more direction to the performer than listening for specific pitches.

Greytudes truly is collaborative in nature, and requires the careful coordination of both parts. This communication between players does not always mean that both instruments perform at the same time. The performers must rely on the transitions from section to section, as some sections do not necessarily require that each performer begin and end each section together. The pianist moves on from a section once the flutist has completed his or her task. *Greytude II* is very traditional in this context, and both parts are interwoven. *Greytude III* consists of a traditional piano part, coupled with a non-traditional flute part. In this movement, the performers must listen for textural and structural changes, direction of pitch (rising/falling), and breath.

Finally, rehearsing the piece as a whole is a challenge because of the third movement. The end of “Brash” requires the pianist to remove the preparations from the piano. Therefore, rehearsing this movement many times requires the re-preparing the piano every time.

4.5 CONCLUSION

Greytudes is an important and innovative addition to the prepared flute repertoire. With the addition of beads, erasers, darts and buzzers, composers and performers have new ways of preparing the instrument that introduce entirely new

sounds. The decision to include preparations that are unpredictable or uncontrollable in nature created the need for space built into the piece for the performer to explore those unpredictable moments. The indeterminate aspect of these pieces adds another layer to the prepared flute repertoire.

SUMMARY AND FINAL CONCLUSION

Music for the prepared flute is a developing genre in the 20th and 21st centuries. The objective of this dissertation was to survey the history, preparations, and repertoire of the prepared flute. As discussed in Chapter 1, composers are writing for the preparation of other instruments, generally with the intent of adding a new percussive aspect to the sound of the instrument, and using everyday objects. Chapter 2 provided the locations for the flute preparations: under/on the keys, inside the tube, the subtraction of parts, the addition of parts from other instruments, and the visual/theatrical aspects to the prepared flute. The preparations generally added percussive aspects to the flute sound, as well as changes to the overtone series and tone color. Chapter 3 provided an in-depth survey into the compositions for prepared flute. These compositions are from many parts of the world, and have been composed as early as 1974 to present day. The commissioned work by Isaac Brockshus, *Greytudes*, discussed in detail in Chapter 4, introduced flute preparations that changed the sound of the flute completely.

My research on the prepared flute literature and experimentation with objects has revealed that the amount of research done on this topic as well as access to prepared flute literature is extremely limited. Music publishers do not seem to publish

this music or make it available for purchase. Many pieces I found reference to were either out of print, have never been in print, or were difficult to access. Similarly, there are not many recordings of pieces for prepared flute. It is difficult to inform a society about a new genre of music if access to recordings is inadequate. The sustainability of a genre with limited resources is a challenge.

The current repertoire for the genre is only scratching the surface of the possibilities for the prepared flute. This document approached the compositions through the perspective of objects used and location of the objects. Therefore, less weight was placed on composers focusing on the visual/theatrical aspects of the prepared flute. More detailed study in this area could provide more substance to this research. In addition, a more thorough discussion into the acoustical properties of the flute and the changes that occur due to the preparations could provide a new interdisciplinary approach to the properties of sound.

Finally, I will maintain a section of my website where I will update new pieces that become available for prepared flute, my process of experimentation, recordings of pieces, and helpful tips. These can be found at: www.staceyleerussell.com.

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APPENDIX A - DISCOGRAPHY

Composer	Piece	Year	Recording	Performers on Recording
Agudelo, Graciela	<i>Meditaciones sobre Abya Yala</i>	1995	https://www.youtube.com/watch?v=XOfdaEKA464	Alejandro Escuer
Beste, Ansgar	<i>Incontro Concertante</i>	2010-2012	https://vimeo.com/53252596	Tinna Þorsteinsdóttir, Áshildur Haraldsdóttir, Grímur Helgason, Sigurgeir Agnarsson, Viktor Orri Árnason
Bloch, Augustyn	<i>Oratorium für Orgel, Streicher und Schlagzeug</i>	1982	Augustyn Bloch (1929-2006) – Oratorium / Supplicazioni LP	Junge Deutsche Philharmonie
Eötvös, Péter	<i>Windsequenzen</i>	1975	Intervals- intérieurs Windsequenzen. BMC: 2003.	UMZE Chamber Ensemble
Erickson, Robert	<i>Kryl</i>	1977	Robert Erickson: Kryl; Ricercar à 3; Postcards; Dunbar's Delight; Quoq: Composers Recordings: 1991	Edwin Harkins
Fabiańska, Ewa	<i>Miniature Sonoristiques</i>	2011	https://www.youtube.com/watch?v=mirIMR1Fpf4	Jeliński Wojciech
Fonville, John	<i>Music for Sarah</i>	1993	Temporal Details: John Fonville. Einstein Records: 1995.	John Fonville
Kim, Jin Hi	<i>Tchong</i>	1995	https://soundcloud.com/jin-hi-kim-1/jin-hi-kim-tchong-1995	Robert Dick and Hong Jong Jin
Kowalska-Lasoń, Justyna	<i>I Touch the Mountains and They Smoke</i>	2011	https://www.youtube.com/watch?v=NiYjaee2hU4	Ryszard Sojka
Kubisch, Christina	<i>Emergency Solos</i>	1973	<i>Instrumentales Laboratorium</i> . [Germany]: BMG Classics, 2004	Christina Kubisch
Madsen, Allan Gravgaard	<i>Schattenschwarz</i>	2013	http://www.agm.dk/schattenschwarz-2013-for-prepared-saxophone-quartet/	Current Saxofonkvartett
Makan, Keeril	<i>Mu</i>	2007	https://www.youtube.com/watch?v=j_yfah7G_k	Masumi Rostad
Matuz, István	"Studium 1" from 6 <i>Studii per flauto solo</i>	1974-1984	The New Flute: István Matuz. Hungaraton: 2014	István Matuz
	"Studium 3" from 6 <i>Studii per flauto solo</i>	1989		
Pintscher, Matthias	<i>Study IV for Treatise on the Veil</i>	2009	Interview: https://www.youtube.com/watch?v=RKFtZghvyU Recording: https://www.youtube.com/watch?v=EmSElr_h5nE	JACK Quartet
Poore, Melvyn	<i>Tubassoon</i>	1994	http://freemusicarchive.org/music/Melvyn_Poore/Groundwork/Tubassoon	Melvyn Poore
Reinhard, Johnny	<i>Zanzibar</i>	1993	https://www.youtube.com/watch?v=LhLoOLys0bU	Johnny Reinhard
Rodriguez, Mauricio	<i>Unnamed</i>	2007	http://www.mauricio-rodriguez.com/web-data/media.html	Mauricio Rodriguez
Scelsi, Giacinto	<i>Canti del Capricorno</i>	1962-1972	Canti del Capricorno: 2006	Michiko Hirayama
Szigeti, István	<i>That's for You</i> for 3 flutes	1988	István Szigeti: Chamber Music with Flute. Hungaraton: 2005.	Janos Balint, István Matuz, Zoltán Gyöngyössi
Young, Charles Rochester	<i>Song of the Lark</i>	1989	<i>Concert d'aujourd'hui: Works for Flute and Harp by Piazzolla, Sierra, Young, etc.: Urtext: 2012</i>	Alejandro Vazquez
Zwaanenburg, Jos	<i>Solo for Prepared Flute</i>	1984	La zététique. Erasmus Muziek Producties: 1994	Jos Zwaanenburg

APPENDIX B: REPERTOIRE ACCESSIBILITY INFORMATION

Composer	Piece	Place to purchase/Publisher/Composer website
Beste, Ansgar	<i>Incontro Concertante</i>	Babel Scores
Bloch, Augustyn	<i>Oratorium für Orgel, Streicher und Schlagzeug</i>	Krakow : Polskie Wydawn. Muzyczne, ©1982.
Brockshus, Isaac	<i>Greytudes</i>	www.isaacbrockshus.com
Eötvös, Péter	<i>Windsequenzen</i>	Budapest : Ed. Musica, c 2003.
Erickson, Robert	<i>Kryl</i>	http://www.jwpepper.com/7562374.item#.V0JnGZErJhE
Fabiańska, Ewa	<i>Miniature Sonoristiques</i>	http://pwm.com.pl/index.php/en/sklep/publikacja/miniatures-sonoristiques-i-touch-the-mountains-and-they-smoke,ewa-fabianska-jelinska,17526,shop.htm
Fonville, John	<i>Music for Sarah</i>	Encinitas, CA : Jonfon Publications, 1993.
Kim, Jin Hi	<i>Tchong</i>	Black Rock, CT : Living Tones, 1995
Kowalska-Lasoń, Justyna	<i>I Touch the Mountains and They Smoke</i>	http://pwm.com.pl/index.php/en/sklep/publikacja/miniatures-sonoristiques-i-touch-the-mountains-and-they-smoke,ewa-fabianska-jelinska,17526,shop.htm
Kubisch, Christina	<i>Emergency Solos</i>	Milano : Politi, 1977.
Madsen, Allan Gravgaard	<i>Schattenschwarz</i>	http://www.agm.dk/
Makan, Keeril	<i>Mu</i>	New York : Project Schott New York, [2013], ©2007
Matuz, István	<i>6 Studii per flauto solo</i>	http://www.di-arezzo.co.uk/sheet+music/instrument+training/sheet+music-for-flute/Istv%C3%A1n+Matuz/6+Studii+per+flauto+solo/AKKOR00042.html
Pintscher, Matthias	<i>Study IV for Treatise on the Veil</i>	http://www.matthiaspintscher.com/
Poore, Melvyn	<i>Tubassoon</i>	http://www.musikfabrik.eu/en/ensemble/members/melvyn-poore
Rodriguez, Mauricio	<i>Unnamed</i>	https://ccrma.stanford.edu/~marod/web-data/works.html#Solo
Scelsi, Giacinto	<i>Canti del Capricorno</i>	Paris : Editions Salabert, [2008], ©1972
Wye, Trevor	<i>Fantastic Flutes!</i>	Justflutes.com
Young, Charles Rochester	<i>Song of the Lark</i>	Fluteworld.com
Zwaanenburg, Jos	<i>Solo for Prepared Flute</i>	http://www.composers21.com/compdocs/zwaanenj.htm